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MANAGING GLOUCESTER'S COAST

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Studies prepared
for the City of Gloucester
by students in MIT Course 11.365
Coastal Zone Management

by

Glenn Acomb
Sandy Bodmer-Turner
Gary Gulezian
Jan T. Taniguchi
Judith Wiegand
John C. Wieneke
Wesley D. Worley

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Related Reports

McPherson, Roy Nick, ed., GLOUCESTER RESOURCE STUDY. MITSG 74-3, Cambridge: Massachusetts Institute of Technology, November 1973. 179 pp. \$5.00.

Engellenner, Thomas, Fred Curtis, and William Seifert, eds., THE BOSTON SOUTH SHORE AREA: SOME PROBLEMS AND CONFLICTS. MITSG 75-23, Cambridge: Massachusetts Institute of Technology, August 1975. 175 pp. \$5.00.

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P R E F A C E

The following report was prepared by a team of seven MIT and Harvard graduate students who selected Gloucester for a case study of coastal zone management. The consequence of the Massachusetts Coastal Zone Management (CZM) program for Gloucester was originally to have been the focus of the effort, but it soon became clear that designing a local management system was a more salient topic, and that is the central concern of this report.

Clayton Carlisle arranged liaison with various agencies and persons in Gloucester. Daniel Calano facilitated contacts through the state CZM Office. Professor William Seifert arranged for MIT Sea Grant funding for final report preparation and reproduction. We owe thanks to them and to all of the others who helped.

The student work has been only modestly edited, so it reflects their own perceptions, based on very short exposure to Gloucester. However, the central recommendations deserve careful consideration, for they could easily provide concepts useful to better managing Gloucester's most salient physical resource, her shoreline.

Philip B. Herr
Associate Professor

S U M M A R Y

This report presents the results of a semester spent studying harbor management and control systems. Seven students with various backgrounds worked with Professor Philip Herr of the Massachusetts Institute of Technology on the problems of coastal zone management and used the harbor of Gloucester, Massachusetts, as a case study. The choice of Gloucester grew, in part, out of the findings of the Gloucester Resource Study directed by Professor William Seifert of MIT in 1973.

The focus of our study has not been the formation of a physical plan for the harbor, but rather an investigation of how the demands being placed on Gloucester Harbor might best be guided through changes in its management structure. Three recommendations result from our study:

1. Formation of an Inner Harbor District Commission;
2. Establishment of an Inner Harbor District permit system; and
3. Establishment of a Coastal Management Zone permit system to cover Gloucester's coastal areas outside the inner harbor.

The remainder of this introductory section will be devoted to a brief summary of the demand on the harbor for fishing industry facilities, the increasing demand in the area for recreational boating facilities, the present harbor management system, and what is needed in a management system in the future. Subsequent sections of the report will discuss demands and existing management in more detail, and several alternative management schemes which were considered and determined to be insufficient to serve Gloucester's needs. Then, our recommendations for management of the harbor will be outlined.

The Fishing Industry

During the past ten years, the Gloucester fresh fish industry has undergone a significant revival. Fish landings have doubled and the economic value of the catch has more than tripled. Further, Gloucester maintains a good position relative to other New England ports in terms of future prospects for landings. However, there is a need for an increase in the capacity of fish processing plants to accommodate both present and projected future landings. There is also a need for more and improved docking space for fishing vessels.

Increases in the number of fish processing plants will be difficult for three reasons. First, Gloucester presently does not have the capacity to supply the fresh water normally used by any additional processing plants, so an alternative method such as dry processing would have to be used. Second, liquid waste discharged by any new plants might require costly pretreatment in order to be compatible with the proposed municipal waste treatment plant. Third, even the number of parking spaces required for additional plants will be a critical space-consuming concern in future proposals.

At this time, it is uncertain whether or how much effect the 200-mile limit will have on the fresh fish industry. The predicted (and now experienced) short-run catch increases give little solid indication of long-term sustainable yields for the most popular species or marketability of the less popular ones formerly most heavily fished by the foreign fleets. Offshore oil development may also affect the catch of some species.

The activity level of the frozen fish industry in Gloucester is expected to remain stable over the next few years. Since frozen fish processors are not dependent upon the local supply, but rather on the international market, the 200-mile limit is not expected to have any significant impact on frozen fish supply or processing.

Recreational Boating

The Cape Ann region is one of Massachusetts' most popular areas for recreational boating due to the large number of well-protected harbors and the aesthetic appeal of the rugged coastline. Gloucester's Inner Harbor and the navigable Annisquam River attract a considerable portion of this activity.

Facilities at existing marinas are overtaxed and the area is in great need of additional slips and moorings due to this present excess in demand and projected increases of 5% per year in boating activity.

However, from a financial standpoint, profits from marina operation are very small in comparison to the gross revenues. To be economically feasible, any new facility would have to be large-scale and include facilities beyond storage, servicing, and retailing of boats. Facilities such as restaurants, hotels, swimming pools, charter operations, boating instruction, or waterfront residential development would be necessary to overcome the unfavorable ratio of profits to gross revenues and to attract investors willing to provide the capital. Marinas make a positive contribution to the city's economy and quality of life, but at least the economic contribution is demonstrably far lower than that of the fishing industry with which it competes for scarce harbor waterfront space.

Harbor Management

There are several conclusions which can be drawn about the maze of local agencies which make up the management system controlling Gloucester Harbor. The following chart shows the general structure of local land-use decision-making agencies, as well as the relationship of these agencies to state and federal ones. During the study, we looked at three types of facility:

1. A fish processing plant on urban renewal land,
2. A fish processing plant on the state fish pier, and
3. A marina.

We chose these three because they are representative of the most likely uses for land in the inner harbor, and the range of institutional contexts. No one agency has comprehensive decision-making authority over all three uses. None of them is considered a "major" project under the Gloucester Zoning Ordinance, so none would receive a detailed cost/benefit analysis by the City Council. Instead, decisions to allow fish processing plants come under the jurisdiction of development authorities with limited geographical scope, while the marina, essentially a private development, will require a special permit from the Zoning Board of Appeals, which has no involvement with fish processing proposals. None of these three agencies is required to consult with the others.

The Housing Authority has created a plan for the urban renewal lands under its jurisdiction. That plan is by its legal nature very difficult to change. The plan already has the approval of HUD and the City Council. To make any changes in the plan, all the original approving agencies must reapprove the changes and those property owners who bought land within the project boundaries subsequent to plan approval must agree -- a next to impossible requirement.

The Fish Pier Association leases the pier from the State and then sub-leases it to operators of the facilities located thereon, based on the Association's own judgment as to what facilities should be located on the pier.

The City Council is empowered to pass all zoning regulations. The harbor is zoned general industrial, meaning that virtually all uses are permitted, so zoning, as it is presently practiced, does not serve as a means of deciding which uses are appropriate for a specialized resource like the harbor. It is ironic that while the City Council has considerable discretion in granting special permits for other uses, in relation to permits for the three types of uses most important to and most likely to happen in the harbor, the Council has only "back door" control through its regulatory jurisdiction over filling and other lowlands alterations. Because of the number of projects which come under its review, the City Council could be the pivotal land-use decision-making agency. However, the Council has only very narrow environmental criteria stemming primarily from the lowlands legislation on which to base its decisions.

Many of the other city agencies have very limited scope, making decisions on only small parts of a total project. The Conservation Commission, for example, could be a prime-mover behind protection of the environment in the Gloucester area, as these commissions have been in some other areas. However, both historically and at the present time, the Commission has lacked strong policy support behind its decisions, and can only preclude, not initiate.

Harbor Management Needs

Gloucester's waterfront areas, especially the Inner Harbor, have enormous demands being placed on them with no systematic opportunity for public policy to be decisive in making allocations. Demand for recreational boating facilities is high and dependable, while demand for expanded fish pro-

cessing is somewhat uncertain. Under those circumstances, the private land market may not resolve resource allocation on the great majority of harborfront land which is privately owned in a way serving the best long-range interests of the City. What is needed is an ongoing process which will allow formation of responsible and well informed public policies on coastal resource allocation, and means for implementing those policies in a coordinated way.

H A R B O R D E M A N D S

FISHING INDUSTRY

The purpose of this section of the study is to assess the future activity levels of the fishing industry in Gloucester and to establish the resource demands that these activity levels imply. The types of resource demands considered include water supply, waste treatment, parking space, and shipping access. The employment and economic impacts resulting from fishing and fishing-related activities are also discussed.

Our primary effort has been directed toward understanding what possible effects the recently enacted 200-mile fishing limitation will have on the fresh fish industry of Gloucester. This issue appears to be a key factor in determining the needs of the fresh fish industry for additional waterfront space and facilities.

Historical Background

Endowed with an excellent natural harbor, Gloucester has been a dominant force in the American fishing industry since colonial times. First settled in 1623, Gloucester attracted many European fishermen to its ideal location. Its proximity to Georges Bank (one of the most productive fishing grounds in the world) and its well-protected, deep-channelled harbor has allowed Gloucester to assume a leading role in the fishing industry of the United States as well as the world.

By the middle of the twentieth century, however, major changes in international fishing practices saw Gloucester's dominance threatened. Foreign fishing fleets with long-range capabilities, highly sophisticated electronic equipment, and superior storage capacities began competing with Gloucester and the other New England ports in the Northwest Atlantic. While foreign fleets have enjoyed large increases in their annual landings, the New England landings have declined. From 1960 to 1970, as an example, the landings of fish and shellfish in New England fell by nearly one-half. More importantly, in the Northwest Atlantic, New England and Gloucester's prime fishing area, the total U.S. portion of the catch had dropped from 98% to 32% in the short span of 1965 to 1970.

In more recent years, however, the Gloucester fishing industry has made an impressive comeback. During the past ten years fresh fish landings in Gloucester have doubled and the economic value of the catch has more than tripled. Optimism regarding the future prospects of the fishing industry has further increased with the enactment of the 200-mile fishing limit. It is still uncertain whether this optimism is warranted. Estimates of the recovery time of the Georges Bank fishery vary greatly and some suggest that the resource may never fully recover. Substantial uncertainties are also created by the possibility of off-shore oil development and its potential deleterious effects on fish populations.

Fishing Fleet and Port Facilities

Since its high point in the 1930's Gloucester's fishing fleet has dwindled from over 400 vessels to approximately 100 at the present time. This trend has paralleled the general decline in fish landings. The fleet is, for the most part, in poor condition. Many boats are old and in need of repair, the majority having been constructed before 1950. As older boats are retired or lost at sea they have often not been replaced by newer craft. In addition, a significant number of the larger fishing vessels have left Gloucester for other ports because of the deterioration of port facilities and the relatively high costs of vessel maintenance and support in Gloucester.

The number of piers providing dockage for fishing vessels has also been on the decline. In the Inner Harbor, piers have decreased from a high of 75 to the present number of 18. Pier space has been lost to harbor filling operations, recreational boating activity, and general deterioration. New port facilities in New Bedford and proposed fish pier improvements in Boston may result in a competitive disadvantage for Gloucester unless the fleet and support facilities are upgraded.

There is, however, some cause for optimism. Title IX economic development funds have recently been made available to Gloucester. These funds will make possible many needed improvements for the fishing industry. The major elements of the funding program are construction of a new and much needed freezer/cold storage facility, provision for increased docking space for fishing vessels, and a revolving/guaranteed loan program with which commercial fishermen can improve or replace their vessels or equipment. Whether the Title IX project will fulfill future needs for fishing-related vessel support facilities will depend largely on the health of the fisheries resource on Georges Bank.

Fish Processing

Fresh fish processing facilities have also suffered heavily during the period of decline of the fishing industry in the 1950's and 1960's. Between 1960 and 1970 the number of fish processing plants in Gloucester fell from 30 to 12. Since 1969 landings of fresh fish have increased and have, at times, exceeded the capacity of Gloucester's processing plants. It has been reported that boats have been turned away on a number of occasions during spring of 1977.

Many of the existing fresh fish processing plants are outdated and in poor condition. Among the problems which face the fresh fish processors are meeting the new OSHA (Occupational Safety and Health Act) requirements and the cost of waste water treatment. At the present time some of the fish processing plants are not in compliance with FDA and OSHA regulations and are only being allowed to operate because of the economic hardship that their shut-down would entail. Large capital investments are required on the part of the fresh fish processors to correct these deficiencies.

The waste water treatment problem may also prove to be extremely costly to the fish processing industry. When operating at full capacity the strength of Gloucester's fish processing wastes exceed those of the rest of the city by more than a factor of ten. The Federal Water Pollution Control Act of 1972 calls for the pre-treatment of industrial wastes destined for newly constructed municipal treatment facilities, and that industries be assessed for their share of municipal waste water treatment costs. These costs will significantly add to the expense of operating fish processing plants in Gloucester, especially in the case of the smaller, marginally profitable operations. The Urban Renewal II - Head of the Harbor Proposal, if approved in its present form, will provide for a much needed capacity expansion in the fresh fish processing industry. The current proposal would expand fresh fish processing capacity by ten million lbs./year, which is equivalent to approximately 10% of the present processing capacity. This increase should meet present demand levels for fresh fish processing. Once again, however, future needs for expansion of the fresh fish processing industry will depend largely on the condition of the fisheries resource.

Recent Trends

The recent landings in Gloucester, as well as the other New England ports, is that of a gradual recovery from an all-time low in 1969. Table 1a illustrates Gloucester's decline in the late sixties and its recovery in the seventies. Gloucester's recovery by 1976 doubled the all-time low, and more importantly tripled in value. Furthermore, this has all been accomplished with such hardships as a (comparatively) smaller fleet, fewer processing plants, and quota limitations. (See Table 1b)

These figures indicate that Gloucester is enjoying a healthy growth in landings, and is not experiencing as difficult times as many imply.

Species Emphasis

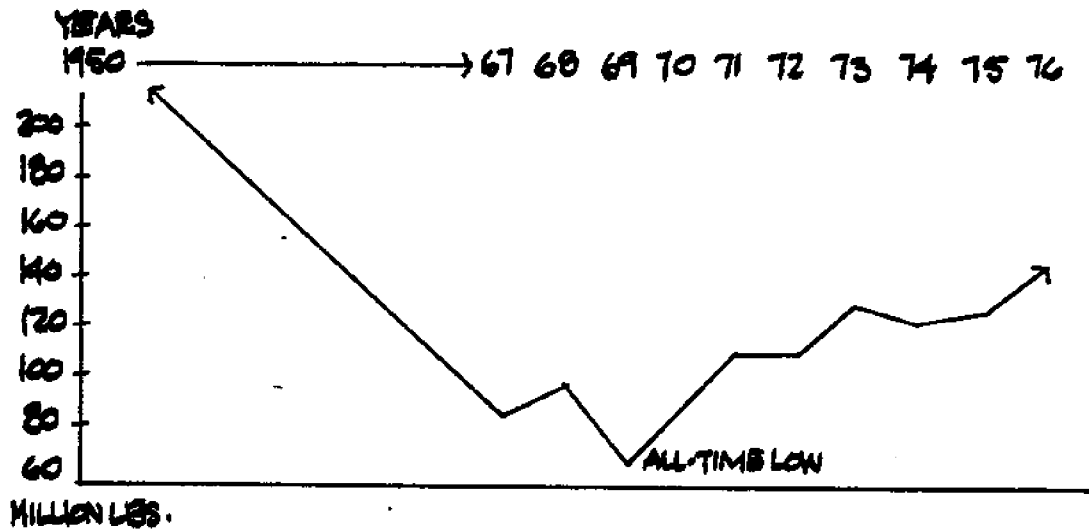
Emphasis by species in Gloucester is characterized by diversity, as opposed to the other two major ports of Boston and New Bedford. While the other ports overwhelmingly emphasize the premium-value fish and shellfish such as cod, haddock, yellowtail flounder and sea scallops, Gloucester maintains an emphasis on such other species as ocean perch, herring, pollock, whiting, menhadden, and lobster. In addition, Gloucester also lands a second emphasis of cod, haddock and white hake. Table 2 provides a profile of the 1976 Gloucester landings by species and value.

Under-Utilized Species

The element of diversity in the Gloucester landings is an historic characteristic which will prove valuable in times of regulation by quota, or by tough competition within the industry. The fishermen of Gloucester have always been willing to adapt to under-utilized species. When premium fish such as cod, haddock and yellowtail flounder have been difficult to land, Gloucester fishermen have been willing to switch to those which are lower-valued such as pollock (long considered a "junk" fish), whiting (a fish of erratic supply) and herring.

TABLE 1a

GRAPH OF LANDINGS 1950-1976



SOURCE: NATIONAL MARINE FISHERIES SERVICE

TABLE 1b

VALUE OF LANDINGS 1971-1976

YEAR*	VALUE
1971	\$ 8 MILLION
1972	10 "
1973	17 "
1974	11 "
1975	15 "
1976	16 "

* 1969 FIGURES WERE NOT AVAILABLE

SOURCE: NATIONAL MARINE FISHERIES SERVICE

TABLE 2

GLoucester's SPECIES EMPHASIS - 1976 LANDINGS

SPECIES	LANDINGS (MILLION LBS)	VALUE	OTHER PORT COMPETITION
WHITING	26.97	\$2.16 MILLION	10,000 TIMES OTHER PORTS
POLLOCK	7.54	\$.98 MILLION	30% MORE THAN BOSTON; NEW BEDFORD MUCH LESS
OCEAN PERCH	8.73	\$1.25 MILLION	3 TIMES BOSTON; NEW BEDFORD MUCH LESS
MENHADDEN	26.86	\$.44 MILLION	NONE
SEA HERRING	37.89	\$1.22 MILLION	NONE
WHITE HAKE	2.24	\$.39 MILLION	4 TIMES BOSTON; 10 TIMES NEW BEDFORD

(77% OF CATCH)

SOURCE: NATIONAL MARINE FISHERIES SERVICE

While further research is not being suggested -- or at least pursued -- there will be future opportunities for market expansion, especially as the possibility for quotas exist.

Quotas

Under the new 200-mile fishing limitation the upper limits on fish landings will be established by quotas set by the New England Fisheries Management Council. These quotas will have profound effects upon the future of the fishing industry. The Council, composed of representatives of the region's coastal states, fishing industries and consumers, will set its quota levels on the recommendations of the National Marine Fisheries Service's scientific experts. Examples of the quota levels for cod, haddock and yellowtail flounder are shown in Table 3.

The effectiveness of the quota system as a device to restore the depleted fish stocks of Georges Bank will depend on many factors. Among these are the enforcement of the quota levels; the accuracy of the scientific data upon which the quotas have been based; natural factors such as the fertility of the fish population and weather conditions at critical stages in the life cycle of particular species; and man-made effects such as oil spills from tankers or offshore oil development.

There is general agreement that the 200-mile fishing limitation will not have any major immediate effects. Most estimates range from three to eight years as the probable amount of time it will take before any sustained increases in fish landings. Due to the large number of uncertainties involved it is extremely difficult to make any sort of valid projection of what future landings for Gloucester will be.

One way to approach this problem is to base projections of future landings on the quota levels themselves. This method yields approximate upper level estimates of landings for species which have quota levels.

Table 3 shows the probable effects of the 1977 quotas on landings of cod, haddock and yellowtail flounder in Gloucester, three of the highest value species. The results are based on the following assumptions: Gloucester's share of the total New England catch of each of the species will remain the same in 1977 as it was in 1976; that the full quota of each species will be landed; and that the price per pound will remain the same in 1977 as it was in 1976.

Based on the above assumptions these projections can only be considered to be approximate estimates, subject to a large degree of variability. However, they have some interesting implications. The 1977 quotas for cod and yellowtail flounder have been set below the levels of the 1976 landings. This implies that Gloucester will land approximately 16 percent less cod in 1977 at an economic loss of about \$600,000, and approximately 40 percent less yellowtail flounder at a loss of about \$275,000. On the other hand, quota levels for haddock are set at higher

TABLE 3
PROJECTED QUOTA EFFECTS TO GLOUCESTER FISHING

SPECIES	1976 NEW ENGLAND LANDINGS (METRIC TONS)	1976 GLOUCESTER LANDINGS	GLOUCESTER'S SHARE OF 1976 LANDINGS	1977 QUOTAS	1977 PROJECTED GLOUCESTER LANDINGS	% CHANGE FROM 1976 LANDINGS	% CHANGE IN VALUE FROM 1976
COD	25,384	6,948	27.4%	21,400	5,857	-15.7%	\$ -604,790
HADDOCK	5,800	1,657	28.2%	6,435	1,816	+10.9%	\$ +166,719
YELLOWTAIL FLOUNDER	17,195	787	4.6%	19,400	476	-39.5%	\$ -275,331

* ALL UNMARKED FIGURES ARE METRIC TONS

SOURCE: NATIONAL MARINE FISHERIES SERVICE

levels than the 1976 landings resulting in a potential landing increase of approximately 11 percent with a \$170,000 increase in value. These figures illustrate to what extent the quota levels might affect the growth of the fresh fish industry in Gloucester.

Frozen Fish

In contrast to fresh fish processing, the frozen fish processing industry has been a more stable and healthy segment of Gloucester's economy. This is partly due to the fact that the frozen fish processors are not dependent on the erratic local fish supply but rather on the larger and more stable international frozen-block market. The 200-mile fishing limit is expected to have no significant impact upon the frozen fish industry. Neither increases nor decreases in production activity levels in this industry are expected in the foreseeable future.

Impacts

Any future expansion of the fish processing industry in Gloucester, either fresh or frozen, would place heavy demands on both the fresh water supply and the transportation system of the city. The city's water supply capability is at present not sufficient to satisfy the demand of any additional conventional processing plants. Unless the water supply is augmented, new processing plants would have to turn to "dry" processing, salt water processing, or other fresh water conserving methods. The vast majority of the shipping of Gloucester's domestic fish exports is accomplished by truck. Roadways and parking facilities are taxed close to their capacities by truck traffic in the Inner Harbor waterfront area. Any new waterfront expansion of the fish processing industry would have to make adequate provisions for parking and access to prevent increased truck congestion.

Despite the general decline in fishing activity, fishing and fish processing remains the economic mainstay of the Gloucester economy. These activities account for 29% of Gloucester's payroll and 25% of its direct employment. Since 1960 the number of commercial fishermen in Gloucester has declined by more than 500. Declines in employment have also been seen in the fresh fish processing industry but these have generally been compensated by increased employment in the frozen fish processing industry. Total employment levels in fish processing (fresh and frozen combined) presently stand at about 1400 and the number of fishermen stands at about 600.

Recent figures indicate that an increase in fresh fish processing capacity of ten million lbs./year would generate approximately 500 jobs in the city of Gloucester. Of these 500 jobs, 200 would be involved with shore-side fish processing, 200 engaged in commercial fishing, and 100 workers in related service industry. These jobs would account for approximately 4 million dollars in wages. A new processing facility capable of handling ten million pounds of fish per year would contribute from \$75,000 to \$175,000 annually to Gloucester's tax revenues.

Port Competition

Gloucester's chief competition will come as it always has, from the ports of Boston and New Bedford (see Table 4). Each respective port has its advantages such as: Boston has the great access and industrial capacity of its harbor; New Bedford has recently constructed several new fish processing plants; and Gloucester has diversified emphasis in its landings.

These advantages will likely remain strong points in each port and contribute to its possibilities for the future. Their disadvantages, however, are those areas which are most necessary to change. Boston and New Bedford fishermen will no doubt begin to investigate other species, especially since several are at extremely low population levels and as quotas are being considered. Gloucester, on the other hand, is in a more favorable position of having made this step, and seems more flexible to alter its species emphasis as the need arises. However, Gloucester's disadvantage lies in its present lack of adequate fish processing facilities. Although the easiest to solve, Gloucester's ability to compete would be severely hampered without the improvement of these facilities. It will be the ports with the adequate processing plants which will be able to enjoy the expectations of the 200-mile fishing limitation -- especially if appropriate quotas are instituted. Furthermore, if appropriate quotas become reality, because of the management strategy of 3-8 years to rebuild fish populations, Gloucester would have time in which to adapt its facilities.

Summary

Fresh Fish

Activity Level. There is presently a great deal of optimism in Gloucester concerning the 200-mile fishing limitation's anticipated effects upon the fishing industry. At this time, however, it is unknown whether this optimism is warranted; the future is uncertain. Such variables as quota limitations, fish population dynamics, Gloucester's competitive position relative to other New England ports and off-shore oil development, will determine the potential for growth in the Gloucester fishing industry. There is, however, a need for an increase in the capacity of fish processing plants to accommodate present landings. Should there be an increase in landings, docking space is another area in which improvements are needed.

Resource Demand. Gloucester presently does not have the capacity to supply the fresh water requirements of any additional conventional fish processing plants. This does not rule out alternative processing techniques such as dry processing. Parking space and roadway systems are currently heavily taxed in the Inner Harbor Waterfront area. Parking and access for trucks will be a critical consideration in locating any additional fresh or frozen fish processing plants in the waterfront area.

TABLE 4
COMPETITION BY PORT - 1976 LANDINGS/VALUE

PORT	TOTAL FISH LANDINGS (MILLION LBS.)	VALUE	VALUE/LB	TOTAL LANDINGS WITH SHELLFISH (MILLION LBS.)	VALUE	VALUE/LB
GLoucester	142.8	\$ 16.4 MILLION	\$.115	144.9	\$ 17.1 MILLION	\$.118
NEW BEDFORD	55.1	\$ 21.2 MILLION	\$.386	65.6	\$ 39.3 MILLION	\$.599
BOSTON	23.3	\$ 6.6 MILLION	\$.285	23.5	\$ 6.9 MILLION	\$.295

SOURCE: NATIONAL MARINE FISHERIES SERVICE

Value to Gloucester Economy. An increase in fish processing capacity of 10,000,000 lbs./year would result in new tax revenues to Gloucester of \$75,000-\$175,000 per year. This development would generate 500 jobs (200 shoreside fish processing, 200 fishermen, and 100 miscellaneous workers) and \$4,000,000 in wages. This increase of 10 million lbs. represents 10% of the present processing capacity.

Frozen Fish

Activity Level. The 200-mile fishing limitation is expected to have no significant impact upon the frozen fish industry in Gloucester. This results from the fact that frozen fish processors are not dependent upon the local supply but rather the international market. No significant increases or decreases in activity are projected for the near future.

Acknowledgements

Information and data used in this chapter were obtained from the following interviews and publications:

People

Dave Crestin	National Marine Fisheries Service
Jack Devanney	MIT Sea Grant Program
Don Fields	Overall Economic Development Commission of Cape Ann, Inc.
Dave Johnston	Gorton's, Inc.
Howard Russell	New England Fisheries Management Council

Publications

The Downtown Development Commission Report
MIT Sea Grant Program
Title IX Grant Application (Gloucester)
Urban Renewal II - Head of the Harbor Proposal (EIS)

RECREATIONAL BOATING

The Cape Ann region of northeastern Massachusetts (including Gloucester, Rockport, Essex, Manchester, and Ipswich) has continued to be one of the most popular areas for recreational boating in Massachusetts, owing to its abundance of well-protected harbors and inlets in addition to the aesthetics of the rugged coastline. Gloucester, in particular, with a well-protected inner harbor and navigable Annisquam River, is a site for a considerable portion of this boating activity.

Boating as a form of leisure is growing at a present rate of roughly 5 percent per annum throughout the United States. Presently, there are about 47 million boating participants in the Nation, representing 9.5 million recreational boats. The boating participants represent about 20 percent of the total population of the country. These figures are independent of the seasonability of boating (as some regions are able to maintain year-round marine activities), and represent the gross population of boating enthusiasts. Within the Commonwealth of Massachusetts, there are currently nearly 150,000 boats, of which 4000 are reported registered in the Cape Ann region.¹ Registered boats are not a good indicator of gross numbers of boats, as the registration of boats in Massachusetts is limited to motor-boats of five horsepower or more, meaning that sailboats are exempt from state registration. In addition, large craft (basically business oriented) are also not registered with the state, but are under the classification of a "documented vessel," and are registered with the United States Coast Guard.²

Boating season in Gloucester runs from April 15th to October 15th, as defined by the summer berthing contracts for most marinas. The period of heavy use, however, is confined to 16 weeks of the summer. Within the 16-week period approximately 16,000 people visit Gloucester for boating, or roughly 4 percent of the 400,000 total visitors. Boating projections for Eastern Massachusetts are depicted in Figure 1.³

Demand

The results of a late 1976 State Coastal Zone Management (CZM) telephone/air-photography tally of the number of craft within the Gloucester area alone are listed below.⁴

¹ Economics Research Associates (ERA), Market Study for Downtown Gloucester, September 1976.

² Fothergill, William R. and Jeanne V. Beekhuis, Building Tourism in Bourne, May 1973, p. 75. Also, conversation with Harold Kramer, April 4, 1977.

³ McPherson, Roy Nick (ed.), Gloucester Resource Study, 1973, p. 24.

⁴ Dan Calano in the State Coastal Zone Management Office.

POWER BOATING PARTICIPATION
SCORP REGION V (EASTERN MASSACHUSETTS)

YEAR	PARTICIPANTS	USER DAYS
1975	30,599	327,350
1980	32,075	346,878
1985	32,911	361,857
1990	33,344	371,848
1995	33,740	378,118
2000	34,244	382,265

Figure 1

Source: Massachusetts Department of Environmental Management

BOAT REGISTRATION BY BOAT TYPE
IN THE STATE OF MASSACHUSETTS/¹
1967, 1970, 1973, 1976

<u>Year</u>	<u>Boat Type</u>					<u>Annual Growth Rate in 3- Year Period</u>
	<u>Under 16 Feet</u>	<u>16 to 26 Feet</u>	<u>26 to 40 Feet</u>	<u>40 to 65 Feet</u>	<u>Total</u>	
1967	55,577	29,114	5,299	446	90,436	
1970	59,237	37,961	6,850	503	104,551	5.2%
1973	66,260	48,437	11,828	691	127,216	7.2%
1976	N.A.	N.A.	N.A.	N.A.	146,000/ ²	4.9%

N.A. means not available.

¹ Only boats with motors are registered in the state.

² July 1976 estimate by Massachusetts Division of Marine and Recreational Vehicles.

Source: International Marine Expositions, Inc., State Boat Registration; Massachusetts Division of Marine and Recreational Vehicles; and Economics Research Associates.

Figure 2

1,671vessels moored
642vessels in marinas
1,830vessels trailered (estimate)
600vessels on waiting list

30 percent of the boats listed above are owned by Gloucester city residents; the remainder are boats of people outside of the region (primarily from Eastern Massachusetts). Gloucester maintains roughly 52 percent of the boating service facilities in the Cape Ann region, and consequently retains 52 percent of the boats either in slips, moorings, or storage. The Cape Ann region is currently in great need of additional boating facilities (primarily slips and moorings) owing to the increase in boating enthusiasts each year. Existing facilities are already taxed and in most North Shore marinas there is a waiting list of up to 3 years in some instances. There is an unquestionable demand for additional facilities. The ERA Draft Market Study for Gloucester (9/76) indicates that the net demand for boat storage for Cape Ann in 1978 will be 555. Assuming that Gloucester should take up 52 percent of the demand there is a projected need by 1978 for storage for an additional 289 boats. Future projections are presented in Figure 3, in addition to the already existing waiting list of 600. Facilities to store on the order of 800 boats is not an unreasonable demand for future planning.⁵

In addition to the question of slip and mooring space, we should also consider the existing marinas of the region with respect to their facilities to determine the type of marina facilities necessary for the future. In order to accomplish this inventory of existing facilities, types of marinas should be defined to ease discussion and future organization.

Minimal Service Marina (MIN): Services offered by this boat facility would be limited to mooring/slips/fuel/drydock accommodations. Repair of boats would be confined to general maintenance, with no major boat repairs performed.

Medium Service Marina (MS): This marina would have slip and/or mooring and/or drydockage, and fueling as with MIN. However, the MS would offer a repair service dealing with much more major repairs in addition to general maintenance. The MS would also include in its operation the sale of boats, engines, and their accessories.

Full Service Marina (FS): The full service marina would include all of the elements of the MS, but also must include another operation such as a restaurant, lounge, hotel accommodations, swimming pool, charter operations, instruction, residential accommodation.

⁵ ERA, op.cit., p. VII-7.

DEMAND FOR MARINA FACILITIES
CAPE ANN AREA/1
1976-1985

	<u>1976</u>	<u>1978</u>	<u>1980</u>	<u>1985</u>
Number of Resident Boats in Region/ <u>2</u>	2,245	2,475	2,729	3,483
Number of Resident Boats Requiring Marina Space/ <u>3</u>	1,078	1,188	1,310	1,672
Total Boat Storage Demand/ <u>4</u>	3,593	3,960	4,366	5,573
Less Estimated Existing Supply/ <u>5</u>	3,405	3,405	3,405	3,405
Net Demand for Boat Storage	188	555	961	2,168
Portion Locating in Gloucester/ <u>6</u>	52%	52%	52%	52%
Cumulative Demand for Boat Storage Spaces in Gloucester	100	290	500	1,130
Approximate Annual Demand in Years Shown	100	95	105	125

/1 Includes Ipswich in addition to Gloucester, Rockport, Manchester, and Essex.

/2 Boat population as calculated from Table VII-3 assumed to grow at 5% per year.

/3 Number of boats over 16 feet long; 48% in 1973.

/4 Assumes resident market accounts for 30 percent of total demand.

/5 Includes moorings and slips. Based on ERA interviews with harbor masters and Boating Almanac, 1976. Also includes 75 slip marina planned in Gloucester.

/6 Represents Gloucester's share of existing facilities. Since these are nearly fully occupied, a 52 percent penetration rate is conservative.

Source: Economics Research Associates.

Figure 3

- Boatyard: The boatyard is concerned primarily with the repair and maintenance of boats. The boatyard is often a part of a marina as in the case of a FS or MS. With the boatyard berthing is an auxiliary business.
- Auxiliary Marina (A): This marina could be any of the above marina types; however, the marina itself is the supporting activity of some larger business.
- Private Marina (P): The boat facility is for private business and not for personal boats.

There was a great deal of difficulty in obtaining accurate information relating to numbers of slips and moorings, and types of activities carried on in the individual marinas. Studies done on the marina situation in the Gloucester area contained distinct discrepancies, and time was such that a thorough phone or personal investigation could not be conducted. Through the process of elimination, we attempted to filter out the more accurate or plausible data. Such data is listed in Figure 4. Note that there is a discrepancy between the figures acquired through the state CZM office and the capacity of boats calculated by marina information in Figure 4. Total vessels in Gloucester waters (excluding trailered vehicles) is 2313 and the maximum calculated capacity is 1230. Consequently I suspect that there is a current over-taxing of the existing facilities. The effect of Brown's racking of boats and overall dry storage was not taken into account. Even with the addition of Brown's land storage capabilities the situation is still one of overuse.

As evidenced by Figure 4, there are very few large scale full service marinas in the Gloucester area. As a consequence, marina conception within the Gloucester community has been limited to boating activity. Economics have implied that any new marina facility should be of a large scale (at a minimum of 150 slips), and employ activities beyond the storage, servicing, and retailing of boats. Studies of marinas have shown that the net profit from a marina operation is very small in comparison to the gross revenue. A typical gross income for a 150-slip marina would be on the order of \$300,000. The profit following expenses and taxes might run \$9000.⁶ The size of the marina(s) involved in helping to alleviate the strain on the existing marina facilities would be about 800 slips. I am assuming for future discussion that the 800-boat demand will be taken up by two 400-slip operations. My projection for future marina capacity is not based on a solution that would eliminate the need for more facilities, but rather to allow Gloucester to make use of its location to prevent the acquisition of berthing space from becoming an impossibility. Realizing the unfavorable ratio of profits to gross revenues, these new marinas should strive to cause

⁶ Cole, Bruce J., Marine Recreational Conference, Boating in New England, University of Rhode Island Sea Grant, 1973. Also, Fothergil, op.cit., p. 81.

MAJOR RECREATIONAL BOAT DOCKING SITES

Name	Type	Slips	Moorings	Other Services
1) Annisquam Mkt & Marina	F.S.	24	40	fuel/sales/repairs/hardware/snack bar/ice bev/transportation to and from restaurant
2) Annisquam Yacht Club	M.S.	--	70	
3) Beacon Marine Basin	M.S.	30	--	fuel/sales/repairs/hdwre/store/carpentry/head
4) Brickford's Marina	M.S.	75	30	fuel/repairs/showers/laundromat/head/showers
5) Brown's Gloucester Yacht Yard	M.S.	Const.		space for 80 racks/150 outside/sales repairs/hdwre/head/bev/tackle
6) Burnham and Thomas	M.S.	12	15	fuel/repairs/hdwre/bev/head/ice
7) Cape Ann Marina & Motor Inn	F.S.	300	--	fuel/sales/charter/hdwre/rest/pool/motel/brokerage/car rental
8) Eastern Point Yacht Club	F.S.	--	70	N/A
9) Gateway Marina	F.S.	36	80	ramp/fuel/sales/repairs/lounge/marine store/head/ice/bev
10) Gloucester House	MIN.	few	--	dockage while dining
11) Gloucester Marina	M.S.	150	--	sales/hdwre/ice/bev/engine repair/bait
12) Gloucester Town Landing & Mar.	L	--	--	residents only/40' float/temporary tie-up only
13) Gloucester Town Ramp	R	--	--	50' asphalt/free
14) Gloucester Yankee Marine Serv.	M	50	6	sales/repairs/hdwre/head/shower/ice/bev

Figure 4

Major Recreational Boat Docking Sites (continued)

Name	Type	Slips	Moorings	Other Services
15) Hesperus Marine Service	MIN.	40	--	fuel/repair
16) Huck's Boat Livery	N/A	20	50	
17) North Shore Sports & Fishing Club	MIN.	few		fuel/ice/beverage
18) Pier Seven	MIN.			fuel
19) Portside Marina	MIN.			
20) Robinson's Marina	MIN.			lobsters
21) The Rockaway	A	20	--	restnt/hotel/pool/lounge
22) Sea Port Associates	M.S.	few	--	sailboat rentals & sales/school
23) Seven Seas Wharf	R	--	--	ramp/fuel
24) The Studio of Rocky Neck	A	--	--	tie-up while dining/overnight
25) Yankee Sportfishing	P	--	--	fishing boat rentals/charter/equipt.
26) Wheeler's Point Boat Yard	M.S.	100	--	fuel/sales/repairs/hdware/head
TOTAL		~750	~360	
CAPACITY		~780	~450	

Figure 4 (continued)

an increase in this ratio. Several strategies could be employed. One of the basic ones might be to shift the income distribution to that which would favor an increased income without an increase in costs. Figure 6 illustrates the current income situation of marinas and boatyards in Massachusetts, taken from a survey conducted by the University of Massachusetts at Amherst for 1972 to 1973.⁷ Also included is a pie diagram of income sources for the entire United States. The figures are fairly compatible. The expanded function of a full service marina may help to offset the seasonability of boating activity. Winter storage complements the boating season and should be reinforced by other boating and non-boating activities, such as boat repairs, boat sales, restaurant, lounge, health facilities, etc.

It may occur to the astute reader that there is an apparent contradiction in the boating situation in Gloucester. While there is an unquestionable demand for boat storage facilities, it appears strange that the establishment of a marina is basically uneconomical. By interpretation it appears that the reason for being uneconomical may lie in the fact that slip fees for a new establishment will have to be competitive with existing facilities (ca. \$20) and that new facilities will have to be in less convenient locations than those presently in operation. Consequently, the establishment of a full service marina will play down the importance of slip fees in favor of other operations. With amenities such as a clubhouse, restaurant, or apartment, slip fees could be increased to perhaps present a more promising financial picture.

The 5 percent per annum increase in boats without the construction of new berthing facilities seems peculiar in that one would wonder where the new boats are stored. Granted, the currently overtaxed facilities could probably handle an additional number of boats; however, there will be a point at which the lack of berthing space will prevent the number of new boats from increasing at the present rate.

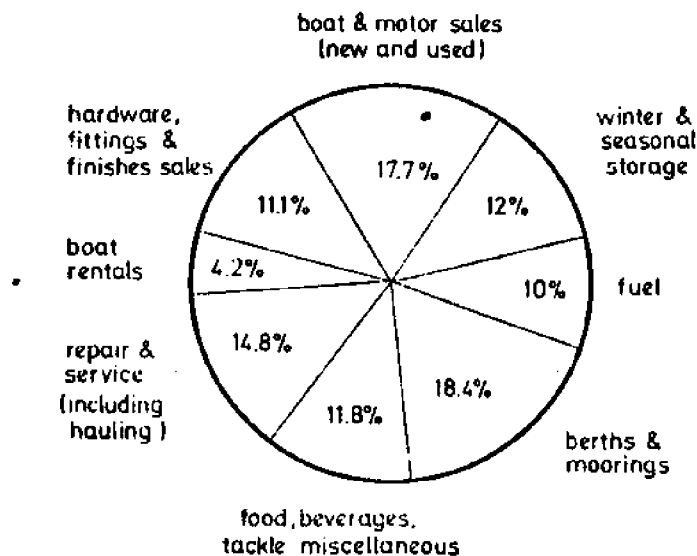
If slip prices were increased, it may be possible to cut the demand for marina facilities. Likewise, with the restriction of marina facilities to distinct areas, the inconvenience of new locations may deter new boat purchases. However, by cutting back on the demand for additional facilities through the use of economics, new boat dealers and brokers will bear the brunt of the situation. The reality of marinas raising prices to the extent of cutting out the demand for their facilities is highly improbable, but was mentioned to demonstrate that at some point the demand for boating facilities could lose its inelasticity.

⁷Storey, David A., The Massachusetts Marina and Boatyard Industry, 1972-1973, 1974, p. 50. Also, Adie, Donald W., Marinas: A Working Guide to Their Development and Design, c. 1975, p. 289.

1972 Gross Business Incomes by Source for
89 Surveyed Establishments That Reported Incomes

SOURCE	GROSS INCOMES			
	DOLLARS	PERCENT OF MARINA AND BOATYARD SUBTOTAL	PERCENT OF NON-MARINA AND BOATYARD SUBTOTAL	PERCENT OF GRAND TOTAL
MARINA AND BOATYARD ACTIVITIES:				
SERVICES:				
SUMMER BERTHING	1,869,402	10.2		9.1
WINTER STORAGE	1,400,155	7.6		6.8
LAUNCHING AND DOCKING	251,606	1.4		1.2
REPAIRS	4,658,997	25.4		22.6
SALES, RENTALS, ETC.				
MARINE STORE	2,080,809	11.3		10.1
BOAT AND ENGINE SALES	5,291,654	28.8		25.7
BROKERAGE (COMMISSIONS)	237,457	1.3		1.2
CHARTERS AND RENTALS	64,500	0.4		0.3
OTHER:				
MISCELLANEOUS	317,698	1.7		1.5
NOT SPECIFIED	2,184,126	11.9		10.6
SUBTOTAL - MARINA AND BOATYARD ACTIVITIES	18,356,704	100.0		89.1
ACTIVITIES OTHER THAN MARINA AND BOATYARD:				
RESTAURANT	472,357		20.9	2.3
MARINE CONSTRUCTION	840,724		37.3	4.0
OTHER	942,910		41.8	4.6
SUBTOTAL - ACTIVITIES OTHER THAN MARINA AND BOATYARD	2,255,991		100.0	10.9
GRAND TOTAL, ALL ACTIVITIES	20,612,695			100.0

Source: Massachusetts Marina Boatyard Industry, 1972-1973



Source: Marinas a Working Guide to Their Development and Design, 1975.

Figure 6

Effects of Expanded Facilities on the Gloucester Economy

Although there is an unquestionable need for additional marine facilities it is difficult to conceive of an investor who would tie up so much money (\$500-\$2000 per slip) in a facility that has such a low profits to gross revenue ratio. There is the option of seeking federal or state money to help with the construction and maintenance of a marina. It is evident that public enterprise's "profits" are not locked into operating profits, but the potential economic impacts and newly created moneys from the area influenced by the marina. Marinas attract people of reasonable income, and it can be assumed that with increased marina facilities, income from outside sources could be brought into the city of Gloucester by boat owning individuals. The largest boat owning economic group in the United States was reported in 1972 to be of income between \$10,000 to \$15,000; the next being from \$15,000 to \$25,000; the third from people with income from \$8,000 to \$10,000. Those people of income beyond \$25,000 comprise a small segment of the boating population. These figures say nothing as to the type of boats owned by individuals nor the annual amount of money spent on boating activity by each economic group.⁸

If we assume that the percentage of Gloucester residents owning boats, using Gloucester marina facilities remains at 30 percent, an increase in boating facilities will cause a corresponding rise in money that will be brought into the Gloucester community. This increase in money to Gloucester will not be limited to a clear and free influx of money, but will be balanced by the outputs relating to supporting the additional facilities which clearly will come from outside the Gloucester area. Figure 7 illustrates a primary system of relationships with a typical marina operation.

Marinas themselves are not particularly labor intensive, averaging roughly one person per ten boats through the year; however, the supporting businesses relating to boating activities could support substantial additional labor, if there was created a demand for such services.⁹ Unemployment in Gloucester for the past few years is tabulated in Figure 8. Figure 8 compares unemployment in Gloucester to the employment picture for the state and nation. Note that the Gloucester figures are far above both the state and national averages. Consequently, the generation of employment through the secondary effects generated by increased boating capacity may be sizeable, if salaries are such that it is worth one's while to work rather than collect unemployment compensation. In order to get a handle on the size of secondary effects, the multiplier could be used as an indicator, as it is a measure of re-spending effects. We shall refer to Professor Jack Devanney's remark that for an area of high unemployment, the multiplier will be on the order of 1.25 to 1.30. We shall apply this multiplier to the figures on the economic analysis calculated in the next section.

⁸ Napoli, James J., Editor, Marine Recreational Conference, Boating in New England, New England Marine Resources Program, Sea Grant, March 1972.

⁹ Storey, p. 53.

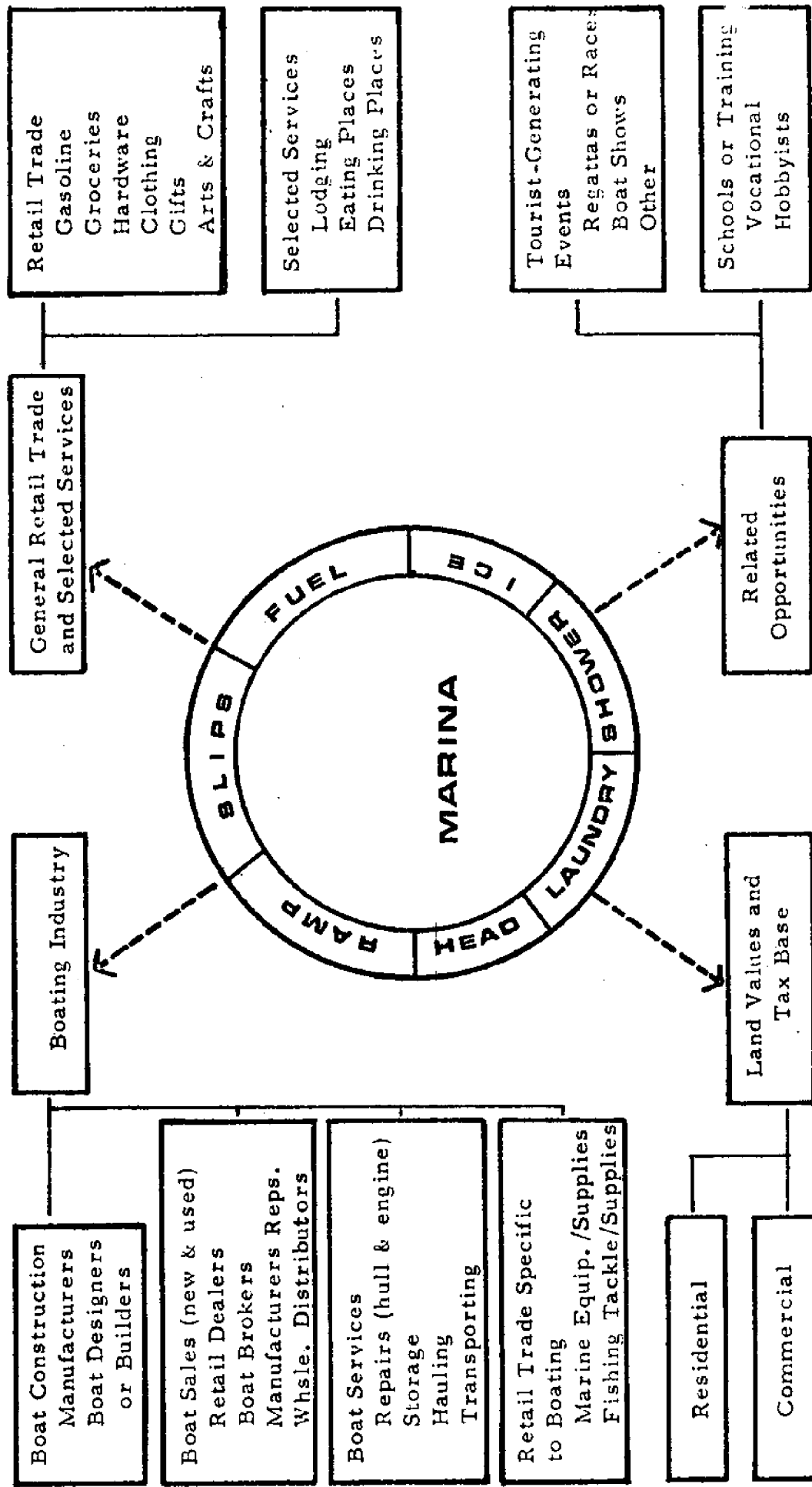


Figure 7

Source: Building Tourism in Bourne, May 1973.

AVERAGE UNEMPLOYMENT RATES

YEAR	GLOCESTER	MASSACHUSETTS	USA
1960	12.5%	5.1%	5.5%
1961	12.7	5.9	6.7
1962	11.6	5.4	5.5
1963	11.1	5.8	5.7
1964	10.6	5.7	5.2
1965	10.2	4.9	4.5
1966	8.9	4.2	3.8
1967	9.5	4.1	3.8
1968	8.5	4.1	3.6
1969	N/A	3.9	3.5
1970	6.6	4.6	4.9
1971	9.2	6.6	5.9
1972	7.8	6.4	5.6
1973	7.8	6.7	4.9
1974	10.7	7.2	5.6
1975 (Jan)	15.1	10.3	9.0

*Includes Gloucester, Rockport, Essex and Manchester

Source: Phase One Committee Report, City of Gloucester
Downtown Development Committee, October 14, 1975.

Figure 8

In speculating additional facilities for the Gloucester area, one should clarify the demand based upon the usual 5 percent increase per year of boaters with the demand that will be introduced if additional facilities are developed. Much as there exists a multiplier effect upon dollars spent at a typical marina, there is also a multiplier relating to the demand caused by the creation of additional facilities. A new marina facility may cause boating accessory stores and bait and tackle stores to expand their inventory to include smaller boats, thus adding to the demand placed on marina facilities. Likewise, if people realize that a good marina operation exists in Gloucester some may move their existing berthing location to Gloucester. In a negative manner, with new marina facilities at hand, those Gloucester residents who were hesitant to own a boat in the past due to difficulty with slip space may enter the boating market, keeping income exchanges within the Gloucester study area, and in some instances, by increasing the percentage of Gloucester resident berthed boats, the effect will be to cause a new outflow from the Gloucester area. Here we are dealing with the marina's effect upon the income of all residents of Gloucester, and our analysis should be insensitive to money exchanges within the Gloucester area, but concerned with the net inputs and outputs from that area.

Economic Analysis

At this point I think it would be extremely helpful to discuss the alternatives open to Gloucester with respect to recreational boating and their relative economic impacts upon the city. As I view the situation, there are basically three alternatives, given the constraints of marina business, and the demand for additional boating facilities.

1. Remain the same without taking on any more boats.
2. Update existing boating establishments to increase capacity and level of services.*
3. Create marina facilities (FS) to accommodate an additional 800 boats.

To begin my economic analysis I shall use alternative 1 as my baseline. The accounts that can be attributed directly to boating as it exists are listed below:

REVENUES

Employment
Taxes
 Personal Property
 Excise
 Real Estate
Profits

EXPENSES

Municipal
Non School Costs

If we assume the CZM boating figures to be correct, and the following assumptions, a gross estimate can be made of the marina's contribution to the municipal economy of Gloucester.

*Candeub, Fleissig and Associates field survey indicated that 50 percent of Gloucester's marina shoreline is deteriorated.

Employment: Assume marina employment based on 1 man per 10 boats, salaried at \$9000/year. I am ignoring secondary employment effects.

Personal Property Taxes: Personal property taxes on boats is levied at \$81/\$1000 of assessed value. In a phone conversation with a member of the Gloucester Board of Assessors, it became apparent that clear notions of average boat valuations are unavailable. For this analysis boat valuation has been assumed to be \$700.

Excise Tax: Excise Tax is based on 1/3 of 1 percent of the value of the boat; however, the boats generally contributing to excise taxes are those of business boats, and it will be assumed that the contribution of excise taxes from recreational boats is negligible.

Real Estate Taxes: Marina land for real estate taxation is based upon front-foot along the water's edge and depth back from the edge. Assessment is obviously based upon the degree of improvement and use of the land. Again with a conversation with the assessors, I could not get a feel for the tax situation, with respect to either average valuation, nor taxation rate. I shall assume a taxation rate of 3 percent on property valued on the basis of \$300,000 per 150 boats.

Profits: With the lack of additional information assume marina profits of \$60 per boat.

Municipal Non-School Costs: For the analysis it is assumed that non-school costs are equivalent to total tax levy minus the tax levy for schools. Marina-related non-school costs can be determined by a simple proportion between assessed value of marinas and total assessed value against marina related non-school costs and total non-school costs.

Equation 1:

$$\frac{(\text{Marina}) \text{ Assessed Value}}{(\text{Total}) \text{ Assessed Value}} = \frac{\text{Marina Related Non-School Costs}}{\text{Total Non-School Costs}}$$

Using figures from fiscal 1976 (7/1/75-6/30/76) acquired from the Gloucester Board of Assessors:

Total Assessed Value = 181,217,720

Total Tax Levy	\$ 14,533,660
School Costs	8,027,945
Non-School Costs	<u>6,505,715</u>

Applying Equation 1 to find marina-related non-school costs:

$$\frac{\$300,000 \times 2300/150}{181,217,720} = \frac{\$165,140}{\$6,505,715} \quad \text{Marina-related non-school costs}$$

For the analysis we assume that the marina-related non-school costs will increase in proportion to the taxes collected on the marina schemes.

It should be apparent that my gross economic analysis does not paint an accurate picture of the net effect of the new marina development or marina update in the Gloucester area. Most of the assumptions were based upon a simple minded approach to the problem and have been developed to facilitate discussion and computation rather than being precise. Information was difficult to gather and the analysis will be used as a basis for the ensuing discussion.

The figures given to the employment contribution to the Gloucester economy is not a net effect, as it does not reflect the net increase in income available to the Gloucester community. If employment were to be analyzed more accurately, it would note the generation of new jobs for the unemployed only, rather than shifts in occupation, which may likely be the case in most situations. In addition, the employment figure should be the difference in the job salary and the welfare payments that would otherwise be given to those occupied in the new jobs. It is very difficult to determine both how many people will move from unemployed to employed versus those who will simply change occupation, and also the net difference in unemployment compensation and salary on a large scale. Gloucester is an area of relatively high unemployment and low income as noted in Figures 10 and 11. Consequently, it could be assumed that a high percentage of new jobs or jobs left by those shifting into newly created marina positions would be taken by the unemployed, barring the introduction of "outside" labor. However, the percentage of new jobs taken by the unemployed is difficult to predict. The employment figures are based on the current trends in marina management, and the extent of a full service marina may vary significantly. If a full service marina were established, with hotel, restaurant, and land recreation facilities, more jobs would be created in proportion to the number of boats than in a situation without labor intensive land based operations. With updating existing marinas, there may not be an increase in the number of men employed in a linear relationship to the number of boats docked, but the ratio may decrease in favor of better management techniques.

The employment account also lacks the contribution of employment created by secondary effects. The secondary effects are especially difficult to predict, although I would expect that employment would increase beyond the new marina facilities due to the marina.

The profits account, likewise, is based upon the existing situation and could very well change with the introduction of more efficient management, and more favorable profits to gross revenue ratio, accomplished by diversified activities. A lounge may very well increase gross revenues

GROSS ECONOMIC ANALYSIS

	Existing Condition (2300 boats)	Updating (2500)	New Marina (3100)
Salaries	\$ 2,070,000	\$ 2,250,000	\$ 2,790,000
Profits	138,000	150,000	186,000
Taxes			
Personal Property	130,400	141,800	175,000
Real Estate	<u>138,000</u>	<u>150,000</u>	<u>186,000</u>
Total Revenues	2,476,400	2,691,800	3,437,800
Municipal Expense	<u>165,140</u>	<u>179,540</u>	<u>222,600</u>
Net Revenue	2,311,260	2,512,260	3,215,200
Change	0	201,000	903,940
Multiplier of 1.25	0	251,250	1,129,925
Revenues/Acre of New Marina			41,849/acre (based on 27 acres of land)

Figure 9

EMPLOYMENT TRENDS
GLOUCESTER EMPLOYMENT AREA^{/1}
1970-1976

<u>Year*</u>	<u>Labor Force</u>	<u>Total Employment</u>	<u>Total Unemployment</u>	<u>Unemployment As % of Labor Force</u>
1970	15,600	14,700	900	6.6
1971	17,400	15,900	1,500	9.2
1972	17,600	16,400	1,200	7.8
1973	19,300	17,970	1,330	7.75
1974	19,600	17,600	2,000	10.2
1975	22,600	19,750	2,850	12.5
<u>1976</u>				
Jan.	20,900	18,000	2,900	13.9
Feb.	20,900	18,150	2,750	13.2
Mar.	20,850	18,400	2,450	11.8
Apr.	21,000	19,100	1,900	9.0
May	21,500	19,650	1,850	8.6

Note: These figures are by place of residence and include persons who work outside of the Gloucester employment area.

^{/1} Includes Gloucester, Rockport, Essex, and Manchester.

Source: Massachusetts Division of Employment Security; Overall Economic Development Plan, 1975, Overall Economic Development Committee of Cape Ann, Inc.; and Economics Research Associates.

Figure 10

FAMILY INCOME CHARACTERISTICS/1
CAPE ANN AREA
1970

<u>Jurisdiction</u>	<u>Up to \$5,999</u>	<u>\$6,000- 8,999</u>	<u>\$9,000- 11,999</u>	<u>\$12,000- 14,999</u>	<u>\$15,000- 24,999</u>	<u>Over \$25,000</u>	<u>Total</u>
Gloucester							
Number	1,615	1,504	1,577	1,114	1,066	275	7,101
Percent	22.7	21.2	21.5	15.7	15.0	3.9	100.0
Rockport							
Number	298	364	253	202	244	121	1,482
Percent	20.1	24.6	17.0	13.6	16.5	8.2	100.0
Essex							
Number	153	95	130	153	143	22	696
Percent	22.0	13.6	18.7	22.0	20.5	3.2	100.0
Manchester							
Number	152	201	246	164	269	240	1,272
Percent	11.9	15.8	19.3	12.9	21.2	18.9	100.0
TOTAL AREA							
	2,218	2,164	2,156	1,633	1,722	658	10,551
	21.0	20.5	20.4	15.5	16.3	6.3	100.0
Essex County							
Number	28,059	29,366	35,337	26,698	32,275	8,541	160,276
Percent	17.5	18.3	22.0	16.7	20.1	5.4	100.0

1 Includes unrelated individuals.

Source: 1970 Census of Population, and Economics Research Associates.

Figure 11

without a corresponding increase in overhead costs. Also, improved facilities may allow the marinas to charge more to their clients for marina service. With increased capacity, Gloucester may attract more of a transient crowd, who may be prone to spend more money on a given day than those staying for a considerable length of time.

Personal property taxes on boats is difficult to estimate as the taxation system exists today. Taxation is imposed as of where the boat is on January 1st. Consequently, pleasure craft are generally not in the water at that time of the year, and those living outside of the city of Gloucester may have moved their boats out of the area. January is perhaps when there is the smallest number of boats in the area, meaning that there is a considerable portion of revenue that could be acquired if the taxation date were to be moved to July, as is currently being proposed by Representative Lane of Essex. My figures are based on total boats that would be in Gloucester in a given boating season. I was unable to get winter figures from the assessment office in Gloucester. If Representative Lane's bill wins approval, the revenues from personal property taxes will approach my figures in the analysis. With July assessment, taxation money (roughly 70 percent, based upon 30 percent boat ownership by Gloucester residents) based on personal property taxes will experience an increase.¹⁰

Real estate tax figures are also deceptive in my study as I was unable to get information with regard to property valuation from the assessor's office. It is undoubtedly true that a marina development upon either underdeveloped or deteriorated land will increase the property's valuation, hence increase the taxes; however, in order to get a net change in real estate taxes it will be important to note the taxes presently being collected on the proposed piece of property, and the taxation following the development, and the difference between the two numbers will be the net effect on the Gloucester economy. In addition, not knowing the land valuation will also preclude knowing how the marina will affect the land values of those parcels in proximity to the new development, which would also have an effect upon net revenues to Gloucester.

In my analysis I have assumed that municipal costs increase proportionately with tax changes in development schemes; however, maintenance would probably increase with increasing boat population, due to road wear, necessity of improving road conditions, probability of pollution, policing, and highway clean-up. The new facilities would require more water, which would place more of a burden upon the already tenuous fresh water situation. In addition, the new marina areas may require adjoining waterways to be dredged. The increase in municipal costs would not be constant throughout the three alternatives. I do not have an estimate of the costs associated with the maintenance activities, although I would not doubt that if a development were to occur, Gloucester would incur additional operating expenses.

Hence, it can be said that although my economic analysis may appear to show the differences between the existing conditions and two alternative

¹⁰ Phone conversation with Roger Edwards of the Board of Assessors, Gloucester, Massachusetts, April 6, 1977.

situations, the figures would vary drastically depending upon the actual situation that occurs. An analysis similar to the one performed could be used to compare the economic effects of marinas versus fish processing on a given piece of property to aid in future decision making. My analysis while basically qualitative, was an attempt to bring out the subtleties of large scale economic projections that should be considered to give a more accurate picture of the effect of alternatives.

Side Effects

As a consequence of new and improved marina facilities there may be incentive for existing facilities to either update their operations or cut back on certain activities in the attempt to specialize and systematize the entire marina system in Gloucester, hopefully creating a more favorable cash flow situation. In general, the addition of new and expanded facilities will probably have a beneficial effect on Gloucester by raising the level of boating services found in the area. If conditions are favorable, boating enthusiasts may construct either seasonal or year round residences on a limited scale, increasing Gloucester's personal property and real estate tax accounts. Also with the addition of new facilities there will be a corresponding increase in harbor traffic, necessitating a more efficient harbor management system. The extent to which these side effects can be predicted is questionable and at this point only qualitative speculation is possible.

Land Consumption

Marinas occupy both land and water areas and land to water ratios vary depending upon the type of marina facility. For minimal service marinas, the land to water ratio is 1:1; for a medium service marina, 1.3:1; for full service marinas, 1.5:1. A University of Massachusetts study found the average marina in Massachusetts held 92 summer berths and 77 boats in winter storage. The average marina took up 461 feet of shoreline, between a range of 0 to 2400 feet, and used 5 acres of land and 3 acres of water. If we assume that the average Gloucester boat requires 970 square feet of water (based on 25 foot boats, as Kenneth Joyce's (Harbormaster) estimate of average boat length), for the 800 slip marina we are requiring total square footage on the order of 18 acres of water, and (assuming a full service marina) 27 acres of land.

Figure 12 shows typical calculations that could be run to determine land and water areas. I believe that the calculated values are low. Recent trends in marina design have involved using multi-stack boat storage, reducing the necessary land and water space for boat storage, and providing protection to the boat from the weathering elements. These stacking facilities are generally used for smaller craft (Figure 5) although facilities for larger boats are in existence.¹¹

¹¹Isard, Walter, Ecologic-Economic Analysis for Regional Development, c. 1972, pp. 130,133. Also Storey, p. 43.

SITE REQUIREMENTS FOR THE LARGE MARINA

<u>Land Area</u>		<u>Land Area Per Slip</u>	<u>Marina Size</u>	
			<u>200 Slips</u>	<u>400 Slips</u>
Parking		525 s.f.	105,000	210,000
Outdoor Storage		200	*	*
Indoor Storage		100	20,000	40,000
Repairs		15	3,000	6,000
Boat and Motor Showroom		12	2,400	4,800
Marine Accessories Sales		200 sf/100 boats	400	800
Rest Rooms and Showers		6	1,200	2,400
Gear Storage		2.25	450	900
Administration Office		1	200	400
Dockmaster		. 1	200	400
Food and Bait Sales		1.5	300	600
Fuel Sales		0.5	100	200
Restaurant		1.5	300	600
Other - 10% except parking		10%	2,850	5,710
TOTAL LAND AREA REQUIREMENT			136,400 sf 3-4 acres	272,810 sf 6-7 acres

<u>Water Area</u>		<u>Water Area Per Slip</u>		
Boats	10-20 ft. LOA ^{/1}	15% @ 835 s.f.	25,050	50,100
	20-30 ft. LOA	60% @ 1,270	152,400	304,800
	30-40 ft. LOA	25% @ 1,775	88,750	177,500
Docks	10-20 ft.	15% @ 89.6	2,688	5,376
	20-30 ft.	60% @ 109.8	13,176	26,352
	30-40 ft.	25% @ 136.0	6,800	13,600
Moorings	25 ft. boats	5,880 sf/boat	**	**
	35 ft. boats	8,150 sf/boat	**	**
Launch ramp			1,000	2,000
TOTAL WATER AREA REQUIREMENT			289,864 sf 6-7 acres	579,728 sf 13-14 acres

* Parking area serves as outdoor winter storage area

** Not Recommended

^{/1} Length overall.

Source: Adie, "Marinas: A Working Guide to Their Development and Design", Isard, "Ecologic-Economic Analysis for Regional Development", and Economics Research Associates.

Figure 12

The CZM office has estimated that there exist approximately 1830 trailered boats that use Gloucester waters. Currently there are only 15 ramps in the North Shore area with 3 or 4 in Gloucester. Due to the heavy usage of these ramps, there is a definite need for additional ramp facilities. Ramps could be a source of income to Gloucester, especially if adequate car parking facilities exist. Assuming that a double ramp has a capacity of 70 boats per day, it is felt that 5 of these double ramps may be necessary to take up future demands. The area for a double ramp, including adequate parking facilities and maneuvering space, is about 2-1/2 acres. Provisions for fueling and lavatory facilities could be provided, although these amenities will require additional staffing. The increased use of ramp facilities will have consequences for fast food establishments, service stations, and other supporting businesses.¹²

In the Phase I Marine Affairs Committee report, it was noted that:

Gloucester water areas are not fully utilized either to moor additional pleasure craft or as a public source of income. It is important, though that any development of pleasure boating facilities should take place outside of the inner harbor. The inner harbor should be used for trade, commercial and industrial purposes.¹³

With the suggestion of the committee in mind, a new marina operation might expand along the outer harbor or Annisquam River.

Bibliography

Adie, Donald W., Marinas: A Working Guide to Their Development and Design, London Architectural Press, London, 1975.

Cole, Bruce J., Marine Recreation Conference, Boating in New England, University of Rhode Island Sea Grant, University of Rhode Island Press, Rhode Island, 1973.

Economic Research Associates, Market Study for Downtown Gloucester, September 1976.

Fothergil, William R. and Jeanne V. Beekhuis, Building Tourism in Bourne, May 1973.

Isard, Walter, Ecologic-Economic Analysis for Regional Development, Free Press, New York, 1972.

McPherson, Roy Nick (ed.), Gloucester Resource Study, M.I.T. Sea Grant, M.I.T. Press, Cambridge, 1973.

¹²Isard, p. 174.

¹³Cited in ERA, p. VII-13.

Napoli, James J. (ed.), Marine Recreational Conference, Boating in New England, New England Marine Resources Program, Sea Grant, March 1972.

Storey, David A., The Massachusetts Marina Boatyard Industry, 1972-1973, University of Massachusetts Press, Amherst, 1974.

HARBOR MANAGEMENT

The objective of this chapter of the study is to identify which local agencies possess what kinds of authority over land use decisions in Gloucester's Inner Harbor. To discover these agencies we traced the steps that three types of development would be required to take before construction could begin (see Figure 13). The developments considered were a frozen fish processing plant on urban renewal land, a fresh fish processing plant on the State Fish Pier, and a marina on privately owned land. These three developments were chosen because they seemed to be representative of those mostly likely to occur in the Inner Harbor in the near future and those most likely to have substantial economic and environmental impacts on the city. The authority we were most interested in uncovering was a broad project review authority -- a review which asked the question, "does it make sense, all things considered, to build this particular project in the Inner Harbor, in this particular location?", coupled with authority to make a "no" determination decisive.

What we found was that no one agency has review authority of this nature over all three types of projects. The marina is subjected to this sort of overall review only by the Zoning Board of Appeals. The frozen fish processing plant or other development on urban renewal land is reviewed comprehensively only by the Housing Authority. The fresh fish processing plant, if on the State Fish Pier, is similarly reviewed by the Gloucester Fish Pier Association and the Housing Authority. The City Council, generally an important actor in land use decisions in Gloucester, is limited to reviewing these three projects on relatively narrow grounds. Other city agencies and officials in the Development Flow Chart, i.e., the Board of Health, the Department of Public Works, the Conservation Commission, the Building Inspector and the Harbormaster, all have similarly limited review authority. To some, it was surprising to note the absence of some organizations from the chart altogether, such as the Planning Board.

This chapter begins with a discussion of the Inner Harbor land use regulation authorized by the Zoning Ordinance, proceeds to a review of the controls found in the two Waterfront Urban Renewal Plans, and concludes with a discussion of the development authority vested in the Gloucester Fish Pier Association.

THE ZONING ORDINANCE

The zoning ordinance regulates land development in the Inner Harbor in two ways: through the traditional zoning mechanism which excludes some uses and allows others, and through a system involving several different types of special permits.

Permitted Uses

The entire Inner Harbor, with the exception of Smith's Cove and parts of Rocky Neck, is zoned I-1, General Industrial. This use classification

HARBOR DEVELOPMENT FLOW CHART (EXISTING)

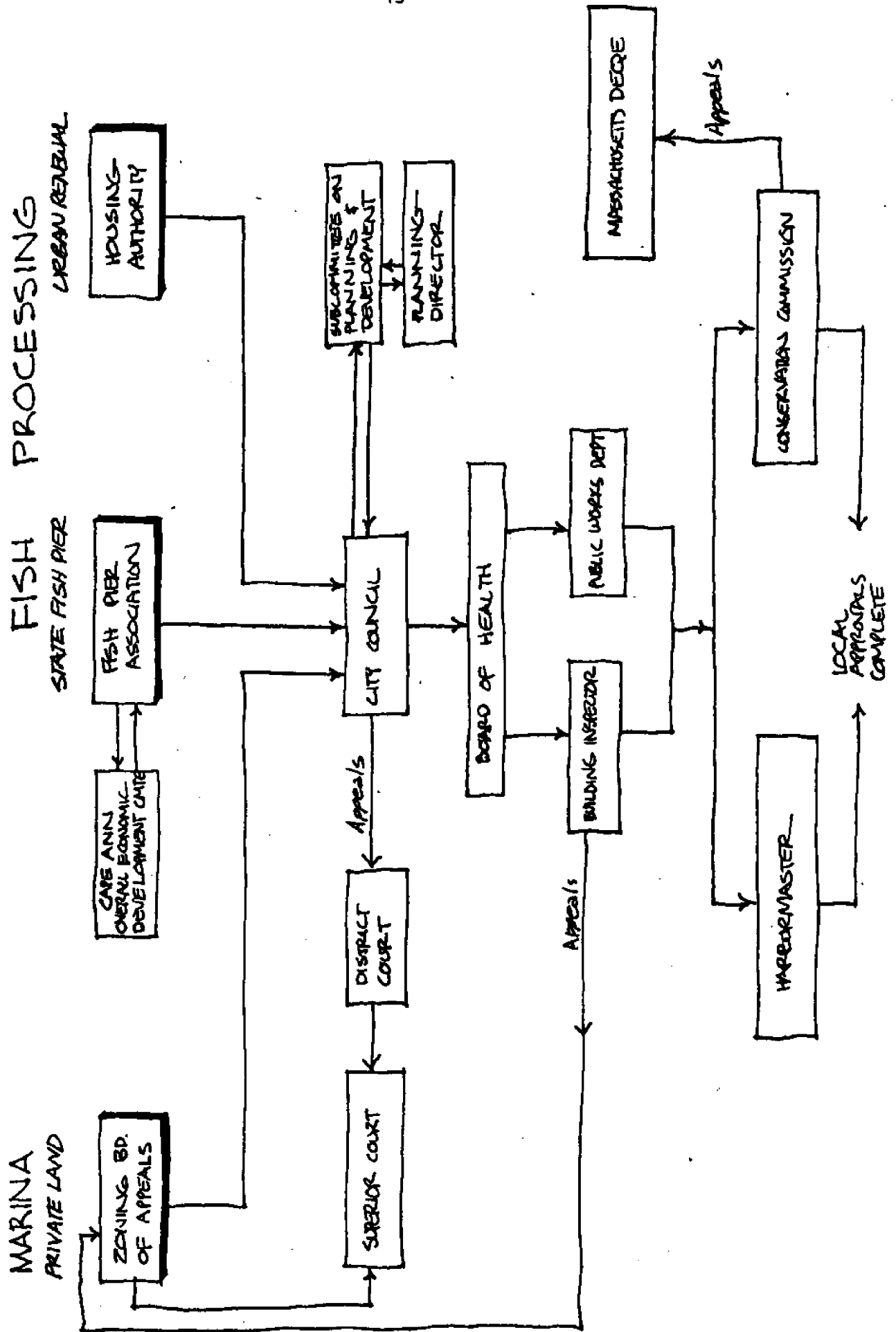


Figure 13

is the least restrictive of all the zones, excluding only six primarily recreational uses, i.e., campgrounds, golf courses. Food processing and storage establishments are allowed as of right anywhere in an I-1 zone. Thus, the Zoning Ordinance would allow either fish processing plant to locate anywhere in the Inner Harbor without careful scrutiny of its major features, since, if a project involves a permitted use and complies with building, plumbing and electrical codes, the Building Inspector is obliged to grant the project a building permit. No locational considerations are involved in such an automatic permit. This is somewhat worrisome, since the city has a clear interest in plants' locations relative to each other because this determines the ease/difficulty of providing them with waste disposal and other public services. Of considerably more concern, however, are the many, non-water dependent uses allowed of right in this waterfront I-1 zone, i.e., laundry and dry cleaning plants, automobile sales or rental establishments, banks, single-family homes, all office buildings. Under the present zoning system, none of these uses, choosing to locate in the Inner Harbor, could be denied a building permit because the use was "inappropriate" for the waterfront. Thus, non-water dependent uses are allowed to pre-empt water-dependent* ones. While this traditional zoning approach may adequately control development in the inland portions of an I-1 zone, it hardly seems to be the best way to regulate development on scarce Inner Harbor land.

Special Permits

In contrast to the mechanism described above, the different special permit systems authorized by the Zoning Ordinance do provide for some oversight of development in the Inner Harbor. There are three different types of permit systems:

1. Special Use Permits,
2. Permits for Major Projects, and
3. Lowlands Permits.

Special Use. Special use permits are granted by both the City Council and the Zoning Board of Appeals with the City Council controlling the majority (fifteen) of the twenty-three uses that require special permits in an I-1 zone. The procedure for securing a special use permit from the City Council involves the following steps:

1. The developer files application for a permit with the City Clerk -- the application includes a plot plan and a standard city form.
2. The City Clerk, at his discretion, may request other administrative officials to review the application, particularly the City Planner and the Building Inspector.
3. If the City Clerk determines the application is in order, he puts it on the Council's agenda to allow for adequate public notice to be given before the mandated public hearing.

*Water dependent uses are those uses which could not occur without proximity/ immediate access to a waterway. These uses are contrasted with uses enhanced by their proximity to the water which includes almost all other uses.

4. After the public hearing, the Council has thirty days before it is required to make its final decision.

Special use permits from the Zoning Board of Appeals involve a similar procedure except that applications are filed directly with the Board and an opportunity for Planning Board and Board of Health consultation is mandated.

In reviewing an application for a special use permit, both the City Council and the Zoning Board of Appeals are supposed to examine how the proposal affects six different factors:

1. the social, economic or community needs served by the proposal,
2. traffic flow and safety,
3. adequacy of utilities and other public services,
4. neighborhood character and social structure,
5. qualities of the natural environment, and
6. potential fiscal impact. (Z.O.s. 1.4.1.2(f); 1.4.2.2(e))

If the beneficial effects of the project outweigh the adverse effects, then approval can be granted. While the review requirements could result in careful analysis of all special use permit applications, in fact, only the most controversial proposals appear to receive this sort of detailed scrutiny.

Of our three most likely harbor developments only the marina would be subjected to the special use permit review. The only other truly water dependent use reviewed under these provisions is marine storage and repair. While the marina is reviewed by the Zoning Board of Appeals, the marine storage and repair facilities are reviewed by the City Council. While the criteria used for review (listed above) provide protection of the city's interests in a general way, they provide no criteria that take into account the special nature of land development in the Inner Harbor.

Major Projects. The process for "major projects" follows the four basic steps described above, but with some important differences. The City Clerk is required to refer the more extensive application to seven city agencies, including the Planning Board.* The agencies are given twenty-one days in which to make their comments, and the Council may not act until this time has elapsed. In addition, the criteria for approval of major projects are more detailed, aimed at mitigating the particular problems associated with each type of use, i.e., rules governing shopping centers specify the project's allowable effects on the city's traffic patterns and volumes. Finally, only the City Council has authority to permit major projects.

None of the three most likely harbor developments are regulated by the Ordinance's major project provisions. Indeed, no water dependent development is considered to be a major project. Only hotels and motels with more

*Agencies to which a major project's application must be referred are: the City Building Department, the Public Health Department, the Engineering Department, the Public Works Department, the Fire Department, and the Conservation Commission.

than thirty units, a use enhanced by but not dependent upon proximity to the water, shopping centers and multi-family dwellings exceeding a certain size are required to pass muster for a major project review.

Wetlands. Unlike special use and major project permits, lowlands permits (and the similar marshlands permits authorized by the General Ordinances of the city) involve reviews with much more narrowly defined criteria. The objective for the two permits is to protect and conserve the coastal environment, particularly its shellfish resources. Receipt of a Lowlands permit requires that a project comply with the provisions of Massachusetts General Law Chapter 131, s. 40 and Chapter 130, s. 27A* and that the project be carried out so as to "conserve the shellfish and other wildlife resources of the City." (Z.O. 5.5.4) A Marshlands permit, while not specifically demanding compliance with State statutes, requires a similar consideration of effects on "certain irreplaceable wetlands." (G.O. s. 11-1/2) Both permits require public hearings. Although other city agencies and officials are consulted at the Council's discretion, particularly the Conservation Commission, the authority to grant or deny a Lowlands/Marshlands permit rests entirely with the City Council.

Although fish processing and cooling facilities are permitted uses in areas zoned General Industrial, these developments do require a City Council permit because their construction is likely to involve any one of the following alterations of the shoreline:

1. removal, filling, dredging or building on any bank, marsh, swamp or flat bordering on coastal waters (Z.O. s. 5.5.4);
2. obstructing, filling, dredging, excavating or changing the course of any tidal water (G.O. s. 11-1/2); or
3. filling, excavating, diking, bulkheading or rip-rapping within or along the shore of any Harbor (Ibid.).

Clearly the marina, in addition to the Special Use permit from the Zoning Board of Appeals, would also require a permit under the Lowlands and Marshlands Ordinances. Thus, all three harbor projects are subject to review by a single body, the City Council. Indeed, any harbor project, since it is likely to involve some alteration of the shoreline, would be subject to such review. However, this review is focussed entirely on environmental issues. If a project will not harm a wetland, the Council would seem to be obliged to approve it, even though using Inner Harbor land for that particular project may not be in Gloucester's best interests.

To sum up, the authority granted under the present Zoning Ordinance to regulate land development in the Inner Harbor is fragmented, incomplete and generally inadequate. The Zoning Board of Appeals and the City Coun-

*"to protect public/private water supplies, ground water or shellfish and fisheries, to prevent storm damage or 'pollution' and to control floods" (Ref. 4)

cil, without any mechanism for coordinating their decisions, review different water dependent uses (boat docking and launching and marine storage and repair facilities, respectively). The two industrial uses of critical importance to the city's economy are subject to review by the city's chief land use decision-making body only on narrow environmental grounds. Nowhere in the Ordinance is provision made to allow consideration of land bordering the Inner Harbor as a specialized resource. Rather, it is considered as if it were no different from any other General Industrial zone, a place where dry cleaners and fish processing plants are equally appropriate. The question becomes, if the Zoning Ordinance provides inadequate land management tools, what other controls are available?

THE HOUSING AUTHORITY

Roughly 30-40% of the land bordering the Inner Harbor has been included in one or the other of the city's urban renewal projects. Development in this sizeable portion of the Inner Harbor is governed by the terms of the First and Second Waterfront projects' plans. The plans were developed in 1963 and 1971 by the Gloucester Housing Authority which is both the city's housing authority and urban renewal agency. The plans contain somewhat general objectives (i.e., to eliminate and prevent blight) and more specific design, structural and site plan requirements that all development within the two areas must meet. While many of the objectives could apply equally well to inland sites, several objectives, particularly those concerned with public access and the fishing industry, recognize the special character of the Inner Harbor waterfront.

The two plans are more restrictive than zoning in regulating what development occurs where. Particular lots are designated for particular categories of uses. UR I, although allocating some land to exclusively commercial uses, reserves 60% of the parcels owned by the Authority for industrial and related commercial development. All thirteen, authority-owned parcels in UR II are slotted for development as waterfront industrial sites.* Thus, possibilities for using these portions of the Inner Harbor waterfront for non-water dependent uses such as nursery schools, banks, and so on are eliminated, and priority given, for the most part, to a range of uses that are water-dependent at least to some degree.

While this restriction of uses may be desirable, the procedures for achieving it are not. Land development becomes a process of coloring in blocks with appropriate uses, since the plan, as described in the study summary, is extremely difficult to change and is in effect for a number of years, UR I for 20 years and UR II for 30 years. No matter how far-sighted and perceptive the city's housing officials might have been, site specific plans made in 1963 are sure to need modification by the time ten or fifteen years have passed. However, the procedural requirements, mandated by Federal regulation (Ref. 9), make any modifications nearly impossible.

*Industrial uses are uses "including but not limited to the landing, processing, storage and shipment of fish; the manufacture and repair of boats and ships and shipboard machinery and equipment; the storage and sale, at

An additional difficulty with the two plans is that, although they encompass a fair portion of the waterfront, they do not include the entire Inner Harbor. Since the Housing Authority regulates essentially by owning, it is doubtful whether broader geographic authority would be possible or wise, given limited public financial resources and the development slowdown which seems to inevitably occur on publically owned land.

Thus, while a decided improvement over the controls provided by zoning, the two urban renewal plans fall far short of an optimal harbor management system. This is because of their limited geographic scope and, most importantly, because of the extreme inflexibility built into the plans.

The Community Pier Association

The Community Pier Association is an independent non-profit, publicly appointed corporation in accordance with Chapter 252 of the Acts of the Massachusetts Legislature for the year 1954. The corporation operates under an irrevocable "deed of trust." The purpose of the corporation is to lease such space as the Fish Pier and the facilities thereon from the Commonwealth and to operate the same for the benefit of those engaged in the fish and fishing industries. In practice what it has done in the past is to simply lease space on the Pier to private enterprises and has not actually been engaged in the fishing industry as an active participant.

The corporation is composed of ten members, nine appointed by the Gloucester Mayor, and one nonvoting member appointed by the Governor. All have fixed terms of office but the members of the corporation must vote to seat an appointee.

It is the opinion of some that the intent as stated in its charter and its legal status give the Pier Association much more latitude for action than it has exercised in the past. An example of this would be acting as developer of Urban Renewal II which is land adjacent to, but not a part of, the Fish Pier. In addition, there is the opinion that the original reason for the Pier Association was to be an active member of the fishing industry. The structure of the corporation whereby the corporation and all present and future assets are dedicated to a trust with profits reinvested seems to support this. Some people feel that the Pier Association is going to attempt to move in that direction with the help of Title IX money to enlarge and improve the pier.

There is some confusion in Gloucester over whether or not the City or any of its bodies or instruments have authority over the Pier due to the

both retail and wholesale of petroleum products, fishing and boating gear and supplies," and off-street parking, offices and warehouses related to permitted uses. (UR Plan, 1963, p. 9) Waterfront industrial sites are limited to the uses listed above plus "electric generating and distributing stations, public access and public landings, the serving of food and drink in small restaurants which are designed to serve employees working in the waterfront industrial area." (UR Plan, 1971, p. 5)

fact that it is state owned. It seems clear that the City has jurisdiction over private parties operating on the Pier. Therefore, since most of the facilities on the Pier were privately constructed, the City has regulatory power (zoning, for example) over them and any future such private facilities.

Another facet of the City's control of the Fish Pier is evidenced by the regulations governing money from the EDA which the Pier Association is eligible for. Under these regulations, state and local (City Council) approval of a proposal is needed before Federal approval is granted. The influence of the mayor due to his power of appointment also cannot be overlooked.

INSUFFICIENT ALTERNATIVES

MASSACHUSETTS COASTAL ZONE MANAGEMENT PROGRAM

This section of our report will discuss some of the alternative harbor management schemes which we concluded were not sufficient, by themselves, to resolve the harbor use conflicts and development issues which Gloucester is now facing. These alternatives include:

1. reliance on the state's new Coastal Zone Management (CZM) program;
2. creation of a "Gloucester Port Authority";
3. granting of some urban renewal development authority to the Community Fish Pier Association;
4. giving broader responsibilities to the Downtown Development Commission or the City Council's subcommittee on Harbor Development.

The first alternative to be considered is use of the state's Coastal Zone Management program as a device for making management and resource allocation decisions on Gloucester's waterfront. In order to understand how the program applies to Gloucester some background information on the Coastal Zone Management Plan in Massachusetts is necessary. The federal Coastal Zone Management Act was passed by Congress in 1972. The Act called for states to establish, in the language of the Act, "management programs to achieve wise use of land and water resources of the coastal zone giving full consideration to ecological, historic, and aesthetic values as well as needs for economic development."

During the past three years the Massachusetts Coastal Zone Management staff, working closely with local citizens and public officials, have produced a state Coastal Zone Management Plan in accordance with the federal legislation. At the present time the state Coastal Zone Management office is in the process of submitting its plan to Washington for approval. The plan is scheduled to go into effect early next year.

The broad policy objectives of this plan include protection and enhancement of the marine environment; protection and development of coastal renewable resources such as fisheries; the elimination or amelioration of coastal hazards; the improvement of the quantity and quality of recreational opportunities; and the encouragement of water related development in established ports and harbors. The plan is designed to deal with only those issues and problems which transcend local boundaries and require a state or regional perspective. No attempt is made to interfere with the traditional decision making roles of local communities.

The state coastal zone management plan is perhaps unique among other state environmental programs in that it requires the passage of no new laws. Rather, the plan has opted to build upon the existing management, regulatory, and administrative framework. This concept is called "networking." It involves a better coordination of the multitude of presently existing agencies, programs, and regulations which come to bear on the coastal zone and it insures that development-related decisions made by state and federal agencies will be consistent with the Coastal Zone Management Plan's policy objectives.

The CZM office's administration of its policy objectives will be carried out in accordance with a set of resource maps which it has prepared with the help of local citizens and public officials from all of the coastal towns and cities. These maps will guide the CZM staff in the implementation of its policies. The maps identify areas of critical concern along the entire Massachusetts coast. The major official designations are the following:

1. Significant Resource Areas (SRA) which would include sites which are important as fisheries resources, flood plains, wetlands, recreational facilities, existing sea-related industrial or commercial development, and other significant coastal resources.
2. Areas for Preservation or Restoration (APR) which are sites whose conservation, recreational, ecological, or aesthetic values are so important that their characteristics must be preserved or restored.
3. Special Assistance Development Areas (SADA) which warrant special planning and funding because of their coastally related development capabilities.

It should be clear that the CZM Plan in Massachusetts has been designed to address broad issues of environmental quality preservation, energy policy, recreational uses, and development of ports and harbors for water-related activities. One must realize that the Plan lacks the authority and detail necessary to insure that specific waterfront developments in an area such as Gloucester Harbor would be the most appropriate use of the area's limited waterfront and economic resources. For example, the Plan is not capable of making decisions for Gloucester that would decide whether additional mooring facilities should be built for fishing trawlers or for pleasure boats. In any case, Gloucester would probably prefer to make decisions such as these locally.

This is not to say that the CZM program has no potential for assisting Gloucester in the management of its coastal areas. The Massachusetts CZM office provides four types of assistance of which Gloucester may wish to take advantage. These are:

1. Assistance in securing federal and state funds needed to carry out specific development programs and projects which meet the policies and objectives of the CZM Plan;

2. Financing of feasibility studies and field investigations for waterfront renewal, port and harbor development, and dredge disposal;
3. Technical assistance to provide needed marine biological, geological, hydrological, recreational, general land use planning or legal expertise;
4. And finally, funding for energy siting impact studies.

In addition, Gloucester Harbor has been designated a "Special Assistance Development Area" (SADA) because of its importance as a fishing port. This designation improves the likelihood that Gloucester would receive funds for harbor development and renewal feasibility studies and would also assist Gloucester in receiving funds for certain projects such as maintenance dredging of the harbor or the removal of derelicts.

A GLOUCESTER PORT AUTHORITY

An alternative that usually gets suggested not only in Gloucester but in most harbor communities as the answer to the problem is the creation of a Port Authority. Arthur D. Little, Inc., recommended to the City in a 1969 report that such a body would be a workable solution. It suggested the establishment of an autonomous agency to manage the port and adjacent publicly owned lands. The intent of this authority was to get needed port facilities constructed.

There are many questions that such a line of action raises. One is whether another autonomous agency working in the Harbor (in addition to the Housing Authority and the Community Pier Association) could adequately address the problems it was intended to solve. The addition of another body with an interest in the Harbor poses the question of whether this might not make decisions and subsequent implementation more difficult than they already are.

There are two points that are the crux of the inadequacy of a Port Authority to answer Gloucester's problem. The first is that if its major intent would be to get needed facilities constructed, the creation of a Port Authority may be unnecessary. It may be unnecessary because an agency already exists in the Harbor that can accomplish this. That agency is the Community Pier Association. During the course of our research we discovered that the Pier Association is legally empowered to promote and physically engage in the fishing industry. Provision of requisite facilities would easily fulfill this purpose.

The other shortcoming of a Port Authority is that it would operate on only a part of the Harbor, leaving the remainder as it is. If the Harbor is to be managed in a coherent and rational manner, the wisdom of separating

management of selected port facilities from the rest of the Harbor and coastlands is questionable. The problems of Harbor resource allocation are not just a problem of the Inner Harbor but conceivably cover the entire Gloucester coastline, including the Annisquam River. In short, we must conclude that a Port Authority is not sufficient for solving the problems of Gloucester Harbor as many believe it to be.

LINKING HOUSING AUTHORITY/PIER ASSOCIATION

The third solution we looked at that sometimes gets mentioned as a way to resolve the problem of Harbor management is some kind of cooperative endeavor between the Housing Authority and the Pier Association. One way this might work is to designate the Pier Association as the developer of Urban Renewal II. Since UR II is located directly adjacent to the Fish Pier, this idea has much merit. Margo Jones in her Master's Thesis at MIT explores one such proposed development that attempts to tie these two pieces of Harbor land together into a unified whole. While the concept is good and Gloucester is urged to consider it, it falls short of solving the Harbor's problems in that it would have an impact on only a small portion of the total Inner Harbor area which needs unified management.

Another management scheme involving both the Housing Authority and the Pier Association that has been suggested would create a new organization that would eliminate both the aforementioned agencies. This recognizes that both bodies are strong, influential parties in the Harbor and attempts to streamline the process of decision-making. However, this solution is probably not politically feasible and from what we've learned of the Pier Association's charter, legally hard to do. These questions aside, though, the combined jurisdictions of both bodies would still only deal with a small part of the area under consideration. For this reason, this alternative, too, must be judged as being an insufficient solution.

OTHER EXISTING AGENCIES

Some have suggested utilizing two other existing agencies as the focus for managing the Harbor. These are the City Council Subcommittee on Harbor Development and the Downtown Development Commission. In the case of the Subcommittee on Harbor Development, more responsibilities would be added to it and it would become the prime reviewer of all Harbor activities. It is not clear what effect if any this would have on the existing lines of authority and approval. The primary reason that we found it to be inappropriate is that it is an ad hoc committee and is viewed as such. It is our feeling that the problem before us clearly calls for a body with a sense of permanence and stability and that the success of the Harbor Development Subcommittee would be hindered by its inherent lack of this.

As for the expansion of the jurisdiction of the Downtown Development Commission, it is argued that since its area of jurisdiction already encom-

passes a good-sized segment of the waterfront, the DDC is the logical vehicle to manage the Harbor. One objection to this is that the present membership of the DDC doesn't adequately reflect the full range of Harbor interests. It is also strongly felt that the concerns of the Harbor and the concerns of the DDC really represent two very different constituencies and that they wouldn't be merged if either is to be effective. It must be realized, however, that the concerns of the DDC for that portion of the waterfront adjacent to the downtown area are legitimate concerns.

As will be seen, part of our proposal for managing the Harbor uses the DDC as a model. Some would argue therefore that it would be more efficient and less bureaucratic to simply give the task to them. For the reasons stated above we do not think this to be a good idea. Furthermore, the bureaucracy would be minimized by the fact that both the DDC and its Harbor equivalent would use the same staff from the Planning Department, which would also provide informal linkage between the work of the two. In addition, both would be serving the same body, the City Council, in an advisory capacity.

PROPOSALS

THE INNER HARBOR DISTRICT COMMISSION

The growth pressures and uncertainties surrounding Gloucester's Inner Harbor indicate the need for a planning body to manage and coordinate activities within that area. An effective planning body can ensure consideration of the harbor within Gloucester's overall planning effort and provide for the appropriate locationing of water-dependent land uses. Avoiding undesirable impacts and integrating land uses can provide public benefit from the Harbor's amenities.

We therefore recommend the establishment of an Inner Harbor District Commission to plan and coordinate improvements and development within and adjacent to the Inner Harbor waters. The commission should consist of 7 to 11 members, all of whom would be appointed by the mayor of the City of Gloucester, with approval from the City Council. The commission members would be appointed in a manner creating staggered terms, and therefore, an annual turnover in part of the commission membership. An example of this system is to appoint 3 members for 3 years, 3 members for 2 years, and 3 members for 1 year, which composes a 9-member commission. Each year three terms expire and three members are added. All of the commission members should have various backgrounds and interests to provide the expertise necessary for the planning and coordination of the Inner Harbor activities and development.

The Inner Harbor District Commission should have the responsibility and duty to:

1. Analyze harbor and shoreline situations;
2. Evaluate harbor conditions;
3. Identify problems;
4. Lead the community in solution identification; and
5. Coordinate (but not have authority over) improvements and development within the district.

We suggest that the Harbor District Commission occupy a position parallel and similar to the existing Downtown Development Commission. This will give the harbor commission an advisory position within Gloucester's municipal government that can work in one of two basic ways. As a purely advisory body, the commission would provide expertise on harbor matters to decision making agencies, either by request of that agency or self-initiated from the commission. Alternatively, if the City chose a stronger system, anyone initiating improvements and development within the district would be required to consult the commission in the early stages of planning. In either case, the commission would be available to provide expertise and advice to decision makers including: the Mayor, the City Council, the Fish Pier Association, and the Housing Authority. As with the Downtown Development Commission, the Inner Harbor District Commission may request the services and assistance of municipal agencies and personnel at times when the commission requires the assistance and advice of such boards and officials.

The commission's geographical area of concern would be called the Inner Harbor District. This district would include water-dependent activities directly related to the Inner Harbor, as well as all land contiguous to the Inner Harbor waters. An example of such a district is delineated in an accompanying figure, and is bordered by East Main St. and Rogers St., and including areas of Rocky Neck, Fort Point, and the mouth of the harbor. If and when the Inner Harbor District overlaps the Downtown Development District, the two planning bodies should advise jointly either by consensus or individual reports.

There are numerous variations of structure and authority that can be assigned to a commission and its district. The most important element is a flexible planning organization having responsibilities and abilities to produce advisory communication among all the municipal agencies.

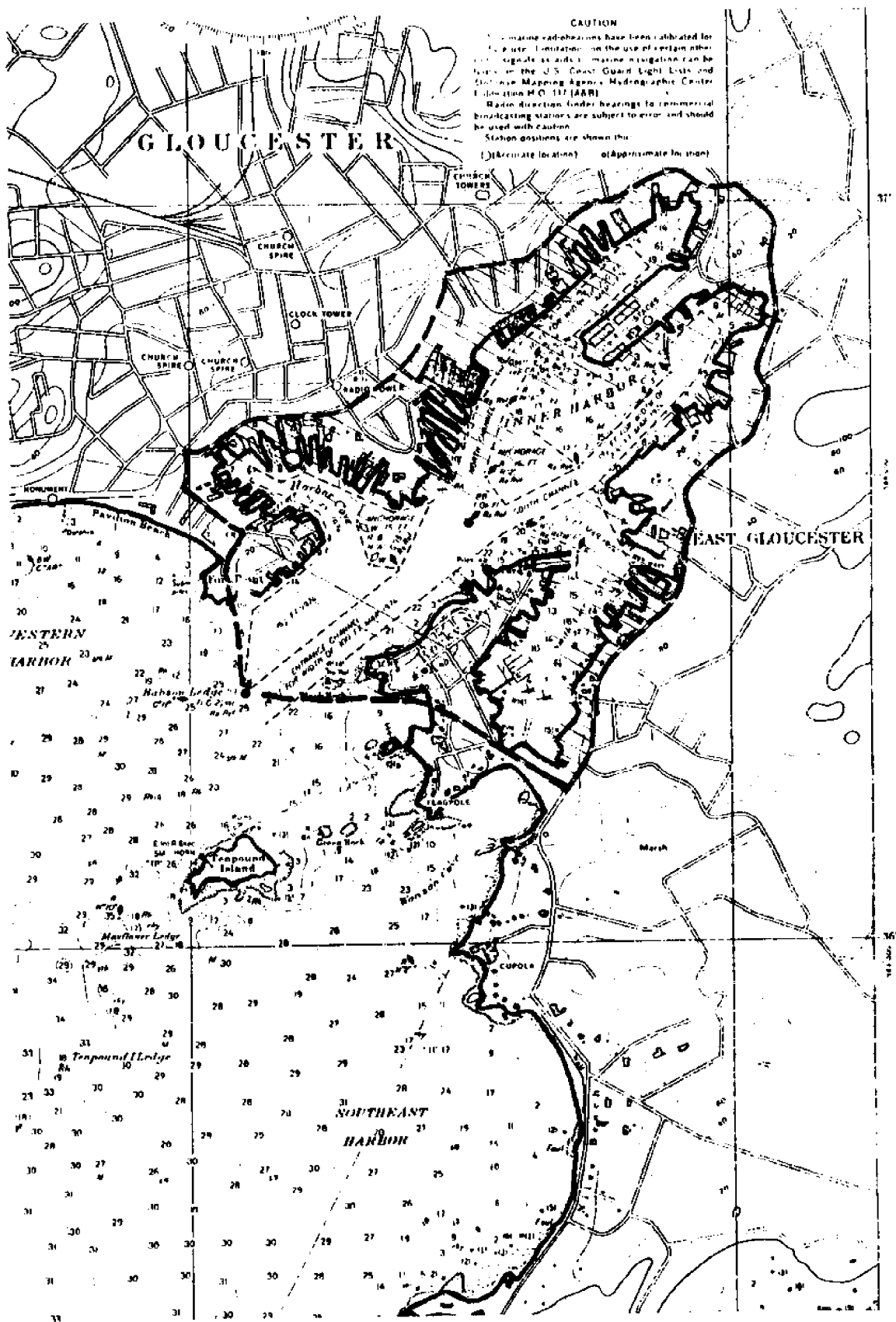
AN INNER HARBOR DISTRICT PERMIT

Previous chapters have stressed the shortcomings of the present land management system relative to the special concerns of the Inner Harbor waterfront. The need for change in this present system is particularly urgent given the increasingly strong development pressures of the recreational boating industry and the somewhat uncertain demands for space of the fresh fish industry. While the present system is limited in important respects, it does contain the basic tools necessary for a more finely tuned and flexible decisionmaking process. In this chapter, we describe a relatively small adjustment to the present Zoning Ordinance which could effect substantial improvements in Inner Harbor land management. The adjustment essentially involves a consolidation in the City Council of overall permitting authority for the Inner Harbor. The first portion of this chapter explains the harbor permit system's basic structure. It then goes on to provide some illustrative examples of criteria to be used by the City Council in deciding whether or not to grant a permit. The chapter concludes with a discussion of two forms the permit might take in Gloucester in light of the city's existing permit mechanisms.

The Basic System

Essentially all projects occurring within an "Inner Harbor District" will be required to secure a special Harbor Permit from the City Council. Such a permit system requires:

1. creation of a Harbor Overlay District;
2. expansion of the City Council's present scope of harbor project review; and
3. creation of a set of review criteria fitted to the special needs of the Inner Harbor.



Proposed Inner Harbor District

The Overlay District would have boundaries similar to those described in the previous chapter on the Harbor District Commission. While leaving present land regulations intact, the District would impose a single additional set of considerations, uniquely appropriate to waterfront development, on all Inner Harbor land. An overlay approach has the clear political advantage of avoiding removal of present regulatory authorities. In addition, since presently allowed uses can hardly be called restrictive, present regulations are unlikely to hamper achievement of more narrowly defined Harbor Objectives.

The City Council's present, exclusively environmental review of all waterfront projects will be expanded to a total project review. The Council will have authority to look at the merit of the proposal, to examine whether that particular project is a good idea in that particular location at this particular time, and if not, to reject it.

The review procedure will be implemented in two different stages: an interim "emergency" phase to be implemented immediately, and a permanent phase to be instituted within two years. The interim review process involves a case by case review by the City Council of all development occurring in the Inner Harbor and exceeding a certain size or other specified threshold. Projects not exceeding the threshold would not be required to secure a Harbor District Permit. The threshold should be set low enough to catch all proposals that are likely to alter the harbor in significant ways, and high enough to screen out minor projects whose careful review would yield few benefits while adding considerably to the Council's workload. For example, the threshold could be set to include all new construction and all expansion of present facilities, or all development using a certain number of feet of waterfrontage. The criteria the Council would use in its review of a Harbor Permit application would be a set of objectives aimed at specialized harbor concerns as well as more general city concerns.

The rationale for an interim review process is similar to rationales for moratoriums -- to give the city breathing room to seriously consider what its objectives with respect to the harbor are and how best to define and achieve those objectives. However, since continuing waterfront development is critically important to the economic health of both the fishing industry and the City, rather than a moratorium on all construction in the Inner Harbor, we recommend instituting the above-described rough-hewn version of the permanent permit system. This allows development to proceed while ensuring that it conforms to some general notions, embodied in the review's Objectives, about what type of development is most desirable in the Inner Harbor. Thus, public and private interests are both well-served. In addition, the interim phase ensures that the final rules will be developed in a dynamic context, that is, they will be formed out of the actual experience of reviewing projects and trying to determine what compliance with the Objectives means in specific, concrete terms. Thus, the permanent system is likely to be more finely tuned and more easily implemented.

The permanent system will involve a review by the Building Inspector of all projects occurring in the Inner Harbor District to determine whether

or not they comply with a set of development rules to be developed during the interim phase. If projects conform to these rules, the Building Inspector will be authorized to grant approval. If a development fails to conform to one or more of these rules, rather than being rejected, it may undergo a review by the City Council, similar to the Council's review during the interim phase, to determine whether or not the project meets the basic Harbor District Objectives, even though it doesn't meet all the specific rules. If it does, it may be allowed. The Harbor Development Rules will be created so that if a proposal conforms to the Rules it will certainly also meet the Objectives. The idea is to create a set of fail-safe rules, rules that guarantee that the city's goals for the Inner Harbor will be achieved.

Such a permanent Harbor Permit system has a number of distinct advantages. It consolidates the presently fragmented authority over Inner Harbor land use in one local body, the City Council. The authority provided to the City Council is complete, being power to review all aspects of a development. It provides a relatively automatic approval procedure for developments conforming to the Rules and, therefore, does not add unduly to the time required to develop and implement a proposal. In fact, such a permit system may reduce this time since it provides developers with clear and fairly detailed signals about what the city expects of all Inner Harbor development, rather than those expectations being learned via an eleventh-hour veto by some city agency. At the same time, since the city's objectives are also clear, the system, through its case-by-case review, allows room for innovative approaches to achieving the Objectives. Finally, in addition to all the above administrative advantages, the Harbor District Permit system provides a mechanism to ensure that the Inner Harbor is treated as the specialized resource it is, and that the best use will be made of its scarce and valuable land.

Review Criteria

Although we believe that definition of Harbor District Objectives and Rules are best done in Gloucester, we have some suggestions which can act as a starting point for local initiatives. What follows is a list of objectives and a list of decision-rules aimed at achieving those objectives. Order in the lists is not indicative of priority. The list of decision rules is not intended to be exhaustive, but merely illustrative.

Harbor District Objectives

Examples of objectives to which all development in the Inner Harbor District might be asked to conform are to:

1. Promote expansion of economically productive water-dependent activities.
2. Improve Inner Harbor water quality and protect and enhance the marine productivity of the Inner Harbor and its environs.
3. Develop additional opportunities for public waterfront access, both visual and pedestrian.

4. Avoid further filling of the Inner Harbor unless essential to achieving other objectives.
5. Conserve the capacity of community facilities, such as roads, sewers and the water supply, by promoting their efficient utilization.

Harbor Development Rules

Examples of rules which, if met, might allow a development to proceed without a special permit.

1. To promote water-dependent activities:

On parcels abutting a publicly maintained channel or basin of 20 feet depth or more, uses would have five priorities:

- a. Fishing industry uses requiring waterfront location (berthing, landing, processing, ship servicing, etc.).
- b. Other uses requiring waterfront location (e.g., marinas) or gaining economies from such location (e.g., industrial uses receiving bulk goods by ship).
- c. Other uses functionally supporting or supported by higher priority uses.
- d. Other uses which attract the public and expose harbor activities to view (e.g., restaurants).
- e. All other uses.

A use would be allowed without special permit only if it were demonstrated that no higher-priority use could be anticipated for development on the site within six years.

2. To improve water quality and marine productivity:

- a. All surface runoff from parking and service areas to be collected and impurities removed by oil skimmers, suspended solid settlement, and other necessary means before discharge to harbor waters.
- b. All local, state and federal discharge regulations to be complied with.

3. To add to public waterfront access:

- a. A view corridor of at least 1/4 of the width of the parcel must be held free of structures which might otherwise obstruct views of the waterfront from public ways.

- b. All development shall allocate portions of their sites to pedestrian pathways, leading from main streets to the waterfront, and to public viewing areas, unless precluded by safety considerations.
4. Avoid further filling of the Harbor:
- a. Any water displacement below mean high water must be compensated for by excavating between the high and low water mark for a quantity of water equal to that displaced, or the city shall be compensated at the rate of \$5.00 per cubic yard displaced. (Modeled on MGLA Chapter 91, s. 21)
5. To conserve community facility capacity:
- a. If the average daily demand for city water exceeds 100 gallons per 1,000 s.f. lot area, the facility will agree to pay triple the water rates which the facility would otherwise face.
 - b. All facilities generating more than 24 automobile or 8 truck parking-hours/acre/day shall provide on-site auto/truck parking areas.
 - c. If the development's average daily demand on sewerage capacity exceeds 100 gallons per 1,000 s.f. lot area, it will agree to pay triple the sewer service charge otherwise applicable.

Application to Gloucester

The Harbor District Permit can be incorporated into the present Gloucester permit system in one of two ways: as an expansion of the special use permit system or as a variation on the major project permit system.

The first approach involves simply expanding the City Council's present special use permitting authority to cover all uses occurring in the Inner Harbor. The steps the development follows after the Harbor Permit is granted would remain the same, i.e., additional permits for compliance with the local Building, Health, and Sanitary Codes would be issued separately by the individual city agencies charged with their enforcement.

Such an approach, while possessing the considerable advantages of the Harbor Permit system discussed above, is vulnerable to the criticism of increasing government regulation over private and, indeed public, land development actions. It can be argued that this increase in regulatory requirements further slows Inner Harbor development, an outcome which is contrary to the city's best interests.

The second approach to implementing the Harbor Permit system, a variation on the present major project permit, answers this contention by further streamlining the review process. Any project occurring in the Inner Harbor would be considered a major project. Since the Council is presently mandated to consult with almost all development-concerned city agencies before

reaching a final decision on a major project, this mandate could be slightly expanded to require that agencies submit recommendations for approval, modification or denial to the Council. These recommendations would be intended to signal the action which individual agencies will later take on permits granted separately and farther down the line. Thus, the major project approach almost creates a one-stop harbor permit, cutting red tape and protecting the special character of the Inner Harbor all in one fell stroke. This approach has the additional advantage of making all concerned city agencies a part of the decision at an earlier stage, when project plans are altered most easily and inexpensively.

Bibliography

1. Conversation with Clayton Carlisle, Planning Director, City of Gloucester, April 7, 1977.
2. City of Gloucester, General Ordinances, 1972.
3. City of Gloucester, Zoning Ordinance, 1976.
4. Dawson, Alexandra, Esq. and McGregor, Gregor I., Esq., Environmental Law, Conservation Law Foundation of New England, Boston, 1975.
5. Inner Harbor District Plan, Gloucester, Massachusetts, for the Gloucester Housing Authority by Candeub, Fleissig and Associates, January 1969.
6. Jones, Margo P., Encrusting the Rocks: Design for Industrial Use, Gloucester Harbor, Master of Architecture Thesis, M.I.T., June 1976.
7. Massachusetts Coastal Zone Management Preview, Massachusetts Executive Office of Environmental Affairs, December 16, 1977.
8. Onset Design Guidance, for the Wareham Office of Economic Development by Philip B. Herr and Associates, April 22, 1977.
9. Conversations with Dale Pope, Assistant to the Planning Director, City of Gloucester, May 19 and 20, 1977.
10. Proposal for Downtown Clearinghouse Procedures, report to the Gloucester City Council from the Downtown Development Commission, February 11, 1977.
11. Shoreline District, for the Bourne Planning Board by Philip B. Herr and Associates, January 24, 1977.
12. Thompson, Kate, Innovative Techniques for Controlling Local Land Use, Harvard University, Graduate School of Design, Department of Landscape Architecture, May 1975.
13. Urban Renewal Plan, Project No. Mass. R-33, City of Gloucester Housing Authority, June 1963, as amended March 2, 1967.
14. Urban Renewal Plan, Project No. Mass. R-213, City of Gloucester Housing Authority, 1971.

A COASTAL MANAGEMENT ZONE

Due to Gloucester's direct dependence upon the sea and marine related activities for its economic well being, it is important that guidelines be established for regions beyond the inner harbor to insure that future development will proceed consistent with the best interests of the city of Gloucester. The area in close proximity to the water is an attractive resource and holds potential for future development that could prove beneficial to Gloucester in terms of revenues derived from real estate taxes and jobs for the unemployed, if managed properly.

The current building permit procedure is confusing and in some instances partial in the determination of a developer's eligibility to proceed with a development. The procedure follows no acknowledgeable consistency in the review process, and the objectives of the city for the area outside of the inner harbor are unclear. Good developments may be hindered under the present system, and detrimental development permitted, depending upon the disposition of the decision makers. Future developments under the current system are bound to result in an inefficient use of Gloucester's coastal resource.

Mechanism of Review

The following is a three-part proposal aimed at the creation of a mechanism of review for building permits for regions beyond the inner harbor bordering the coast.

1. The establishment of a Coastal Management Zone (CMZ) within which the permitting process will apply.
2. The creation of a set of objectives and corresponding guidelines to serve as a baseline against which the merits of a project will be judged.
3. The drafting of specific rules predicated upon the objectives, to serve as prescription for the developer and the permitting review body.

Any development meeting all of the specific rules is automatically entitled to the awarding of a building permit. Those developments meeting some, but not all, of the specific rules are able to seek a Special Permit whose award is contingent upon a demonstration that the development is consistent with the objectives set forth, inspite of their non-conformance to specific rules.

The system of review described addresses the issue of expediency and consistency in the review process, in addition to insuring that the well being of Gloucester is a paramount concern in the decision making process.

COASTAL MANAGEMENT ZONE:

Definition: The region bordering the Atlantic Coastline of the Municipality of Gloucester and the shoreline of the Annisquam River and adjacent wetlands, excluding the Inner Harbor is defined as the Coastal Management Zone. The Coastal Management Zone (CMZ) will be consistent with the coastal zone defined by the State Coastal Zone Management Office.

Jurisdiction: The mechanism of building permit review described herein will apply to the Coastal Management Zone as defined above.

ILLUSTRATIVE DESIGN OBJECTIVES AND GUIDELINES:

- A. Facilitate in stimulating economic growth and reducing unemployment with the efficient utilization of coastal resources.
 - 1. Discourage developments of low labor intensiveness or low construction value from preempting land in the Coastal Management Zone.
 - 2. Stimulate far reaching economic impacts.
- B. Protect Coastal Ecology: in particular avoid pollution or damage to marine or wildlife inhabitants.
 - 1. Prohibit water and air contamination.
 - 2. Prohibit unnecessary destruction of wildlife niches.
 - 3. Insure good ground conditions.
- C. Maintain an intimate scale of development.
 - 1. Prohibit buildings that are unrelated to humans or natural settings.
 - 2. Encourage innovation in building design.
 - 3. Promote marine related reference in building design.
- D. Permit access to the water's edge.
 - 1. Enable citizens of Gloucester and outside communities to use marine facilities.
 - 2. Permit coastal viewing from public roads.
 - 3. Permit boat access.

ILLUSTRATIVE DESIGN OBJECTIVES AND RULES:

- A. Facilitate in stimulating economic growth and reducing unemployment with the efficient utilization of coastal resources.*

*The attempt here is to either generate income for the city through real estate taxes or to insure that a project is labor intensive. The objective addresses the definition of extensive land use.

1. The development must meet one of the two standards:
 - a. Construction value per square foot is greater than or equal to total Gloucester tax revenue divided by total municipal land area multiplied by a factor N, where N is a factor dependent upon the nature of the establishment and is to be determined in the Zoning Ordinance.
 - b. Number of employees per square foot of lot area is greater than or equal to total Gloucester employed divided by total municipal land area, multiplied by a factor E, where E is a factor indicative of high density use, as defined by the Council in adopting the Ordinance.

OR

The development must conform to at least one of the following standards:

- a. Non-Residential: construction value per square foot of lot area is greater than or equal to a set square footage cost multiplied by an inflation factor. The square footage cost would be set in the Ordinance with the intent that the value be indicative of a high land value.
 - b. Non-Residential: the number of employees per acre of lot area should be greater than or equal to a density set forth by the Ordinance. The standard density should be consistent with the densest land use broadly found in the Gloucester or Eastern Massachusetts region.
 - c. Residential: the number of dwelling units per acre should be greater than or equal to a set number of dwelling units per acre. The number of dwelling units used as a standard would have to be indicative of what is considered at the time to be fairly dense utilization of residential land space.
2. Marina projects should include either a hotel, apartment, or restaurant as an integral part of the marina plan.
 3. Marinas should be designed to hold a minimum of 200 slips.
 - a. Smaller craft (less than 16 feet) must be stored in racks.
 - b. Adequate parking, as defined by industry standards, must be demonstrated to exist on the marina premises.
- B. Protect Coastal Ecology: in particular to avoid pollution or damage to marine or wildlife inhabitants.
1. Storm drainage must be either recharged on site or carried in unaltered natural channels without increase in peak volumes.
 2. Buildings built either on slopes or land adjacent to the water must be provided with retaining walls.

- a. If the retaining wall should lie on impenetrable strata, drains shall be provided to prevent the buildup of excess back pressure.
 3. Excavations shall be conducted so as not to disturb water table levels beyond a radius of 75 feet from the excavation.
 4. Dredging operations shall be designed so as not to alter flow rates and currents.
 5. Clearing shall be conducted removing vegetation from no more than 75 feet beyond the construction area.
 6. Waste disposal shall be designed so as not to contaminate adjacent water areas or subterranean aquifers.
 7. Non-water liquid storage tanks shall not be constructed within 30 feet of a water body.
 8. Industrial plants shall not emit smoke or particulate matter into the atmosphere at a level beyond established clean air standards.
 9. Construction shall not involve the filling in of water areas of more than 40 feet from current mean high water levels.
 10. Site work shall not alter surface water flow channels.
- C. Maintain an intimate scale of development.
1. No building wall is continuous for more than 100 feet without a "jog" or "setback" at least eight feet deep.
 2. No unbroken roof area exceeds 2000 square feet.
 3. Parking garages should be limited to a maximum height of 30 feet above grade.
 4. Parking shall include vegetative cover of walls exceeding 5 feet.
 5. Unglazed exterior wall areas shall not exceed 60 percent of total exterior wall area.
 6. Building floor height must be acknowledged by materials, shading devices or fenestration schemes.
 7. Buildings should not occupy more than 70 percent of the site's waterfrontage.
 8. Marine related motifs shall be implemented in the development design.
 9. Walls enclosing the development cannot exceed 6 feet in height and should maintain vegetative cover unless walls are to function as protection to the public from dangerous industrial activity.
- D. Permit access to the water's edge.
1. All beachfront development must be accessible to the general public.

2. Excluding dangerous industrial operations, a public pathway to the water must exist and should be clearly defined by either a view corridor or signs.
3. That section of a perimeter site wall fronting the road should not exceed 4 feet in height.
4. In commercial waterfront developments, berths should be provided for boat access.
5. Developments excluding dangerous industrial operations should maintain a strip of land between the water's edge and building of 30 feet or maintain at least half of the water frontage open to pedestrian activity.
6. Marine-related developments should maintain at least one public ramp with parking for trailered boats, as set by current industry standards.

APPROVAL NOT REQUIRING A SPECIAL PERMIT:

Any development meeting all of the specific rules is automatically entitled to the awarding of a building permit. This permit is not the only permit necessary for proceeding with development, as other types of permits may be required depending upon the nature of the development. The building inspector may require information in addition to that required to show conformance with the rules, if necessary in order to determine consistency with the objectives.

APPROVAL REQUIRING A SPECIAL PERMIT:

Those developments meeting some, but not all, of the specific rules are able to seek a Special Permit whose award is contingent upon a demonstration that the development is consistent with the objectives set forth, in spite of its departure from the specific rules.

